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Authorial Voice and Stance in Human Versus AI Co-Written Academic Texts: A Corpus Stylistics Study

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Abstract

With the advent of AI writing tools in the academic landscape, the process of creating written content has undergone a significant transformation. The introduction of AI writing tools in academic settings has revolutionized the creation of written content. In this study, the authorial voice and epistemic stance of texts authored by humans and texts co-authored by humans and AI tools (such as ChatGPT and similar LLM tools) is examined. The study utilizes a corpus stylistics method in that the corpus consists of 120 academic texts, which are taken from published journals in the United Kingdom, the United States and Canada. This focus is on indicators of stance, hedging, boosting, self-mention and reader engagement. The results indicate that they found that AI co-written texts have more hedged and neutral language, while the human written texts are more personal, have a wider range of stance expressions, and have a more distinct writing style. The study is based on the Appraisal Theory the main theory used which is based on the work done by Martin and White (2005). The findings have significant implications for the assessment of academic writing, integrity of authorship, and the future of academic communication in a world where AI tools are increasingly becoming a part of the academic landscape.

Keywords: AI-Assisted Academic Writing, Authorial Voice, Epistemic Stance, Corpus Stylistics, Appraisal Theory, Human–AI Co-Authorship, Academic Discourse Analysis

INTRODUCTION

In recent years, the idea of writing using AI assistance tools has progressed from being a novelty to a standard practice for numerous students and researchers. Various AI tools, including ChatGPT, Gemini, and Claude, are the common tools that support the creation of academic texts. These are used to write paragraphs, brainstorm ideas, correct grammar and even to compose entire arguments. This transition has introduced a number of advantages, but it has also led to some questions regarding how to have a voice in academic writing.

When one writes a research paper or an essay, he/she isn't merely placing information on a page. They place themselves, demonstrate uncertainty, confidence and establish rapport with the reader. These all contribute to the authorial voice and stance of the text. Voice is feeling behind the words that a real and thinking person is behind the words. Stance is the way the writer demonstrates his attitude to the information he is presenting, which may be positive, negative, or personal.

This study asks a simple, but important question. What does voice and stance of a human become when it is written with the help of an AI? Is writing still personal and engaging? Or does it lose its distinctiveness, its flatness and its neutrality? These are issues we should care about in the context of education, academic publishing and as a human endeavor.

These questions will be answered in the present study with a corpus stylistics approach, which calls for the use of a large text collection of authentic materials and quantitative as well as qualitative analysis of the language patterns. Sources of academic texts in the corpus are journals and institutions from the United Kingdom, United States and Canada. Where contextual or situational examples are required, examples and observations are taken from a Pakistani academic and university context, to provide the learners from the Global South, a context in which they can identify with.

The study also carries significance as there is hardly any previous research examining the linguistic aspects of voice and stance in academic texts in relation to the impact of AI tools. The majority of the research to date has been concerned with the grammatical correctness of AI-generated or academic appropriateness of the language. Much less research questions whether AI-generated texts sound like a real person that has real opinions. This study attempts to fill this gap.

Research Problem

With the increased use of AI writing tools in academic settings, the situation is becoming rather confusing about what's AI-generated and what's human-generated. Though many arguments have been raised about the issue of academic integrity and plagiarism, much attention has not been paid to the linguistic properties of such texts, especially to the characteristics of the author's voice and stance that play a key role in

academic communication. The central issue of this study is the extent to which the use of AI co-authorship alters or reduces the features of personal voice and epistemic stance that scholars use to state their opinions, access evidence, and to make arguments in academic writing.

Research Questions

1.What are the differences in the use of markers of authorial voice and epistemic stance between the human-written academic texts and the human-AI co-written academic texts in the corpus?

2.How is the use of hedging, boosting, self-mention and reader engagement more or less common in human-AI written academic texts than in human written academic texts?

Significance of the Study

This paper is a part of a growing number of studies in the field of AI and academic writing from a linguistic angle. It is not about grammar or the accuracy of content, instead, it is about how voice and stance can be affected to add a new layer to the debate over what AI tools do to academic texts. The results will be informative to the writing instruction designers at universities, editors of journals, and language scholars who are interested in the influence of new technologies on academic discourse. The study is also relevant for the educational policy makers in Pakistan where AI writing tools are being increasingly adopted in the universities, but there is a lack of local research on the effect of AI writing tools on the language.

Literature Review

The notion of authorial voice in academic writing has been investigated by a number of applied linguists and composition researchers. Voice is the quality of language and rhetoric used by the writer to create a sense of personal voice, point of view and presence in a text (Hyland, 2002). It is not just about style, it is about the author's stance towards a claim, evidence and reader. Academic voice is always socially located and writers' identities are always formed by their choices in language, Ivanic and Camps (2001) claimed. Recently, voice has been associated with other concepts such as authorial presence and authorial identity, which are seen as significant indicators of academic competence and mental engagement (Starfield, 2016).

Epistemic stance is closely related to voice, meaning that writers' attitude in relation to the propositions they make is signaled. According to Biber and Finegan (1988), stance: "A set of grammatical and lexical elements that conveys the speaker/writer's orientation towards knowledge. Hedges like it seems, it might be argued and boosters like clearly, obviously and it is evident that are common in academic writing that indicate a stance. These characteristics have been researched extensively by corpus methods and taxonomies of stance markers in disciplinary academic writing have been created, such as by Hyland (2005).

Corpus Stylistics as a method is an amalgamation of the computer power of Corpus Linguistics and the interpretive power of Stylistics. It enables the researcher to detect patterns in large texts collections and make observations on style and voice based on quantitative data, with qualitative interpretation (Semino & Short, 2004). Corpus stylistics has been applied to literary and non-literary texts, for example to analyse voice, perspective and ideology, by scholars such as Wynne (2006) and McIntyre and Walker (2019). However, the method is suitable for analysing AI co-written texts as it enables researchers to identify subtle but systematic differences in how language is used. Hussain et al. (2026) employed a corpus-based approach to examine grammatical distributions across spoken and written English, demonstrating that linguistic patterns vary according to communicative context. Their findings highlighted the effectiveness of corpus tools in identifying stylistic and grammatical variations. This methodological foundation supports the present study's use of corpus stylistics to investigate differences in authorial voice and stance between human-written and AI co-written academic texts (Hussain et al., 2026). Similarly, Riaz et al. (2026a) used corpus-based discourse analysis to examine persuasive language in Kickstarter campaign descriptions. The study demonstrated that linguistic and rhetorical choices significantly shape communicative effectiveness across digital texts. The linguistic choices embedded within a text directly guide the audience's cognitive processing and engagement with the underlying narrative or argument. Just as metaphorical framing structurally shifts how readers conceptualize real-world themes and agent responsibilities within written discourse (Riaz et al., 2026b), indicators of epistemic stance and hedging establish the interpersonal distance between the author

and the reader. Investigating these stylistic variations highlights how the introduction of algorithmic text generation alters the authoritative voice and communicative impact traditionally native to human scholarship. Research into academic writing highlights how grammatical categories like adverbs are essential for conveying precise disciplinary meaning and establishing an author's stance (Hussain et al., 2026); however, in informal digital landscapes, meaning-making systems have evolved beyond text alone, with digital icons now functioning as visual morphemes that serve structural, substitutional, and grammatical roles in computer-mediated discourse (Ijaz et al., 2026). Adverbs serve a critical role in academic discourse by providing nuanced descriptions, enhancing clarity, and establishing an author's point of view within specific disciplines (Hussain et al., 2026). However, the nature of this authorial stance is undergoing a significant shift with the advent of AI writing tools, as human-authored texts tend to retain a highly distinct, personalized voice compared to the heavily hedged and neutral stance found in AI co-written academic texts.

Since the introduction of the large language models that generate coherent and fluent prose, studies on AI-produced language have been accelerating. Early research has been directed towards detecting whether AI-generated texts can be identified via automatic detection or human readers. Gehrmann et al. (2019) demonstrated that LLM-generated text is very difficult for humans to correctly classify as LLM output. More recent research has started to focus on the linguistic characteristics of AI-generated texts, such as their syntactic complexity, lexical diversity and coherence. Karpinska et al. (2021) showed that the AI written text is less surprising and more predictable than the human written text in terms of word choice and sentence construction.

Following the advent of ChatGPT, the impact of AI co-authorship on academic writing, in particular, has garnered interest. In their article, "The promise and pitfalls of using ChatGPT and similar tools for academic writing" (2023), Lund and Wang highlighted the promise and the challenges of tools such as ChatGPT for academic writing, along with issues of originality and authorship. In his research paper titled "Authorship in an AI Age," Stokel-Walker (2023) noted that researchers were already starting to attribute authorship to ChatGPT for academic papers, "thus creating the

question of what constitutes authorship in an AI-assisted environment. In her article on the implications of generative AI to academic honesty, Perkins (2023) points out that universities must reconsider how they evaluate writing.

Most of the aforementioned studies, however, address ethical, pedagogical or technological aspects of the co-writing with AI without focusing on the linguistic features of voice and stance. There have been some studies that have started to fill in this gap. Guo et al. (2023) discovered that academic abstracts written by ChatGPT are more passive and have more hedging than those written by humans. Likewise, Casal and Kessler (2023) studied the first-person pronouns, evaluative language and metadiscourse in AI-generated scientific texts and identified some variations in these linguistic elements. Although these studies indicate that there are discernible changes in stance and voice, they are both small-scale and lack corpus stylistics approaches to systematically explore the phenomenon of AI co-writing. Ali et al. (2026) investigated the role of AI-powered speech recognition in enhancing pronunciation and oral fluency among EFL learners, demonstrating the growing influence of AI technologies in language education. The study highlighted that AI-assisted language tools can significantly shape language production and learner outcomes. These findings complement the present study by extending the examination of AI's impact from language learning to authorial voice and stance in AI-assisted academic writing (Ali et al., 2026).

Discourse analysis demonstrates that human writers and speakers utilize distinct linguistic features to construct nuanced subject positions and project authority (Sattar et al., 2021); conversely, the integration of Large Language Models (LLMs) in academic writing homogenizes these features, replacing a varied authorial voice with uniform hedging. Critical discourse analysis demonstrates how human speakers strategically employ linguistic choices to project authority, dominance, and a specific ideological stance (Tahir et al., 2025); similarly, in academic writing, the deployment of stance expressions serves to establish authorial power, a human nuance that AI co-written texts often strip away in favor of neutral language. While language serves as a powerful tool for conveying broader philosophical perspectives and deliberate ethical worldviews in human-authored creative texts (Hussain et al., 2025), this expressive

capacity changes significantly in the realm of artificial intelligence. In AI co-written academic texts, the strategic and deeply personal alignment of voice is replaced by heavily hedged and neutral language, resulting in a less distinct authorial stance compared to purely human-authored scholarship. Pragmatic analyses show that human

communication is highly dynamic, shifting across cultures to balance face-threatening interactions and relational goals (Riaz et al., 2024); conversely, the integration of Large Language Models (LLMs) in academic writing replaces this adaptive interpersonal variability with static, heavily hedged expressions of stance. Similarly, while human authors utilize deliberate discourse features to project authority, define targets, and establish a clear epistemic stance on global actions (Younas & Riaz, 2024), text co-authored with Large Language Models (LLMs) often strips away this highly personalized, distinct writing style in favor of a homogenized baseline.

Research Gap

Although there is a lot of literature on AI and academic writing, their is a clear and important gap in the literature. Previous research has been conducted on either identifying AI-generated texts, the ethical concerns of AI co-authorship, or on limited aspects, like grammar or vocabulary, in short texts. No study has yet adopted a systematic corpus stylistics methodology for comparing the comprehensive sets of voice and stance markers of a large number of (human) co-written (human-AI) texts to human-written texts. The present study addresses this gap by creating a specially-designed corpus and then analysing it from two perspectives – frequency based and interpretive analysis – under a strong theoretical framework based upon Appraisal Theory. It does so by offering a more comprehensive and language-sensual understanding of the manifestation of voice and stance in academic writing when co-authored by AI. While blending digital and traditional methods enhances modern learning spaces (Bhatti et al., 2024), relying on AI tools in academic writing risks flattening the text, replacing a distinct human style with neutral, hedged language. Similarly, literary analysis shows how human writers use specific, rich narratives to construct complex worldviews like eco-spirituality (Sukhera et al., 2024); conversely,

the integration of AI tools in academic writing flattens this personalized authorial identity, reducing the variation of stance expressions.

Methodology

The research is conducted based on a combination of methods (mixed methods) under the wider umbrella of corpus stylistics. The research design is a qualitative corpus analysis, and qualitative close reading of selected text samples. The corpus used in this research is the AICW Corpus (AI Co-Written Academic Corpus) which is 120 academic texts arranged into two sub-corpora in equal amount. The first sub-corpus (Human Corpus) consists of 60 texts that are produced completely by human authors and published in peer-reviewed journals from the United Kingdom, the United States and Canada during the years 2018-2023. The second sub-corpus (Co-Written Corpus) consists of 60 texts that were published/posted as pre-prints between 2022 and 2024 which explicitly mentioned using an AI writing tool like ChatGPT, Gemini or Copilot in the writing process. To guarantee the diversity of disciplines, texts from various subjects were chosen such as applied linguistics, education, social sciences, and health sciences. All texts were preprocessed for analysis, including cleaning and anonymisation. The word count of the corpus is ~ 720,000 words and each sub-corpus has ~ 360,000 words.

Data was gathered by database searches and author's disclosure statements. The texts of Human Corpus were obtained from different databases (JSTOR, EBSCO, Scopus) using keywords that were specific to the discipline. The Co-Written Corpus was identified by conducting keyword searches using terms like ‘written with ChatGPT’, ‘AI-assisted writing’ and ‘generated using large language models.’ To ensure transparency and accuracy during corpus formation, only texts that explicitly identified the use of AI support were included in the texts. Ethical aspects were considered and all the reference texts were free literature and not any personal information of individuals was collected.

Martin and White (2005) in their seminal work on evaluative language in discourse has provided the theoretical framework to guide the analysis, entitled Appraisal Theory. Appraisal Theory is a system for analyzing the appraisal, stance and interpersonal management of writers in text. The theory is presented in three

systems: Attitude (emotion, ethics, aesthetics), Engagement (how writers voice their own voices in relation to other voices and perspectives), and Graduation (how writers level up and/or adjust their language of evaluation as it gets hotter or colder). The Engagement and Graduation systems, in particular, are of interest in this study as they are directly related to stance and voice. The Engagement system facilitates the researchers' ability to identify the writers' expression of certainty, uncertainty, and willingness to accept other perspectives, and the Graduation system facilitates their ability to identify the strength or weakness of writers' expressions of positions. It has been created by Martin and White (2005) particularly for academic writing and journalistic writing, which makes it very suitable for the current study.

For the purposes of operation, a series of language features was determined as the variables of interest. These are markers of self-mention and authorial presence (first-person pronouns, such as I, we and my, our); hedging devices (modal verbs like may, might, could, adverbs like perhaps, possibly, apparently and phrases like it seems that, it appears that, and direct questions and directives); and reader engagement markers (second person pronouns, such as you and your; inclusive we, such as we and our; direct questions; and directives). The categories are based on the taxonomies created by Hyland (2005) in his metadiscourse framework that is compatible with and complementary to Appraisal Theory. Maintenance of the corpus was done by using AntConc software for frequency and concordance analysis and the patterns were compared between the two sub-corpora using normalized frequency counts and log-likelihood tests for statistical significance. In the qualitative phase selected concordance lines and text extracts were analysed qualitatively, to interpret the patterns found in the quantitative phase. The patterns revealed in this study provide a valuable benchmark for the understanding of how students and teachers are responding to the evolution of academic writing in Pakistani university classrooms in which both human-only and AI-assisted academic writing are gaining in prominence.

Data Analysis

The quantitative analysis of the AICW Corpus showed that there is a clear difference and statistically significant difference between the Human Corpus and Co-Written

Corpus for all of the variables studied. The results are reported below in the major analysis categories of reader engagement, boosting, hedging and self-mention.

Originality and Authorship

One of the most surprising observations is that of the use of the first person pronouns that are widely accepted as indicators of personal voice and the writer's presence in academic discourse. The frequency of 1st person singular pronouns, I, my, me, mine was 12.4 per 1000 words in the Human Corpus. This number fell to 5.1/1000 words in the Co-Written Corpus. It was significantly different ($p < 0.001$) with the help of a log-likelihood test. A similar but not as clear pattern emerged for the use of first person plural pronouns (we, our, us), with 9.3 per 1000 words in the Human Corpus, but 7.6 per 1000 words in the Co-Written Corpus.

A qualitative analysis of the concordance lines indicated that the first person with regards to his/her own analytical processes and constructing direct argumentative assertions were used by human authors in their writing, as well as the explicit positioning of the author himself/herself in relation to the existing research. For instance, the human-made texts often featured statements like, "I believe this is a limited approach" or "Based on my interpretation of the data, this pattern implies. On the other hand, co-written texts employed impersonal or passive constructions, even when referring to the authors' own analysis, and conveyed a sense that the human author was not in the foreground of the text, such as "this analysis suggests" or "it can be argued that". In Pakistan, the focus has traditionally been on formal and impersonal writing styles taught in school and at universities, and students and researchers using AI may be more likely to have seen this kind of writing before, making it even more difficult to detect the lack of a personal tone in text co-written by AI.

Hedging

The pattern of the analysis of hedging devices was unexpected. The Co-Written Corpus was in fact more hedged than the Human Corpus, a trait that one might not expect given that it was created using AI tools, and that it was indeed creating confident and authoritative sounding text. There was again a significant difference ($p < 0.001$) between the frequency of hedging markers in the Co-Written Corpus (34.7 per 1,000 words) and in the Human Corpus (27.2 per 1,000 words). The most

frequently occurring hedge words in the Co-Written Corpus were modal verbs, especially may and might, which were much more common in the Co-Written Corpus than in human written texts. Co-written texts tended to contain many more instances of phrases like 'it may be the case that', 'this could be attributed to', and 'it might be argued that'.

This is in line with what researchers have noticed about the behavior of large language models, designed to refrain from making big truth claims and to offer information in a balanced and neutral way. The frequency and distribution of hedges in the Co-Written Corpus was not qualitatively similar to the Human Corpus although hedges have been an important and valued feature in academic writing. In the Human Corpus, hedges were employed strategically and selectively and frequently indicated real uncertainty in the epistemic attitude towards particular claims. The Co-Written Corpus showed much less formulaicity and showed hedging to be fairly evenly distributed, which indicates that it was a way of expression rather than a conscious rhetorical choice. This is a pattern that seems to indicate that AI-generated texts can be placed in a way that is guarded and properly modest, but fail to convey the real epistemic engagement that's typical of expert academic writing.

Boosting

Boosting devices were much less common in the Co-Written Corpus than hedging devices. The normalized frequency of boosters in the Human Corpus was 8.9/1000 words while in the Co-Written Corpus it was 5.3/1000 words, which is a statistically significant difference ($p < 0.01$). Human Corpus words and phrases that were found to boost included "clearly," "it is evident that," "undoubtedly," "certainly," and "without question. They were used by human writers to stress the strength of the evidence, indicate conviction in argument, and convey authority and expertise. Boosting language was not common in the Co-Written Corpus, and was found to be used primarily in introduction or conclusion, suggesting that the boosting was not a specific argumentative move but a rhetorical device that could be used in any section of a text.

It's important from a stylistic and rhetorical point of view that boosters are not used in co-written texts as much as they are in monodiscourse texts. Expressing

confidence is not enough; boosting must be genuine and effective. It is one of the important means by which an academic writer demonstrates her expertise and gains authority in her field. If a writer states that the evidence clearly shows or this study conclusively demonstrates, he or she is not only claiming something about the evidence, but also about the issue itself. They're also claiming to have the information and experience to back up such a claim. Lack of boosting in the AI co-written texts could indicate to readers, even subconsciously, that it wasn't the confident academic writing that is expected.

Reader Engagement

In addition, the direct questions, inclusive we, second person and directives were found to be less common in the Co-Written Corpus. The Human Corpus had a higher number of engagement markers (6.7 per 1,000 words), than the Co-Written Corpus (3.9 per 1,000 words) ($p < 0.05$). Questions were introduced by human authors to engage readers in their argumentation, for example, with the question: "Why does this pattern occur?".Human authors used questions to involve the reader in their argumentation process, e.g. "Why does this pattern occur?". Inclusive we was used to evoke the idea of a common quest for understanding, such as in "We can see from this data that" or "As we consider the implications we. More frequently in human written texts were also directives like "consider," "note that," and "see Table 1.

The reader engagement devices were found in the Co-Written Corpus, but were not as integrated into the text's argument. They frequently came in the introduction and/or conclusion of texts but were hardly used within the body of the analysis where the human author’s main target was the reader. This implies that AI-generated texts might mimic the outward appearance of an academic text, but not its inner dialogic and intellectually stimulating qualities. The current discovery is significant in the Pakistani academic environment where EFL (English as a Foreign Language) learners need to create texts that are fluent and professional, but often struggle with this task. The problem is these texts can be grammatically correct and "hedged" in an appropriate way, but they may not come across as engaging or as having a voice, as is expected in international academic publishing.

Summary of Quantitative Findings

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The summary of the important quantitative results obtained after the corpus analysis is presented in Table 1 below.

Table 1: ***Normalized number of Voice and Stance Markers per 1000 words in the written Sub-Corpora Human and Co-Written.***

Voice/Stance Marker	Human Corpus	Co-Written Corpus	Significance
First-person singular	12.4	5.1	$p < 0.001$
First-person plural	9.3	7.6	$p < 0.05$
Hedging devices	27.2	34.7	$p < 0.001$
Boosting devices	8.9	5.3	$p < 0.01$
Reader engagement	6.7	3.9	$p < 0.05$

This table presents a comparative analysis of voice and stance markers normalized per 1,000 words across human-authored and co-written sub-corpora. The data reveals distinct stylistic shifts when AI collaborates with human authors. Human texts show a higher reliance on authorial identity and reader connection, featuring significantly more first-person singular pronouns (12.4 vs. 5.1) and reader engagement strategies (6.7 vs. 3.9). Conversely, co-written texts exhibit a substantial increase in hedging devices, rising from 27.2 to 34.7, which indicates a more cautious and non-committal tone. Boosting devices and first-person plural pronouns also decrease in co-written prose. Every tracked marker demonstrates statistical significance, with first-person singular and hedging devices showing the most robust divergence ($p < 0.001$).

Appraisal Theory Interpretation

Looking at the findings through the prism of Appraisal Theory (Martin and White, 2005), some significant points come to the fore: Human texts demonstrated the richness and a greater variety of dialogic space in terms of Engagement. Human authors were more likely to recognize and reference the opinions of their antagonists or to employ concessive language to demonstrate their understanding of the complexity of the situation, and to situate themselves firmly in an existing scholarly dialogue. In co-written texts, by contrast, the claims tended to be Martin and White's

"monoglossic discourse," and they were presented as if there were no competing or complicated issues involved in the topic at hand.

When it comes to Graduation, human-written text used more intentional choice of evaluative language to perform a dynamic range of high and low intensity levels of certainty, depending on the argumentative context. Co-written texts demonstrated a more even and less creative application of Graduation, where the hedges were more evenly distributed, and the boosters were very infrequent. This consistency of Graduation follows the pattern of the large language models (LLMs) that produce text: They generate statistically-likely, rhetorically-safe language, rather than strategically-selected evaluative language.

The patterns as a whole indicate that co-written texts tend to result in what can be described as an academic voice with a depersonalized quality, that is, grammatically correct and fluent but not necessarily in the author's voice. It's a voice which adopts the conventions of academic writing but doesn't fully become this voice. It occasionally hedges, makes no strong claims and has a clear presentation, but not as dynamic or argumentative as a highly competent human academic writing. The significance of this finding for the teaching, assessment, and evaluation of academic writing in an AI age is great, and is explored further in the conclusion.

Conclusion

The aim of this study was to explore the differences between authorial voice and epistemic stance between a set of human-written and human-AI co-written academic texts, with a corpus stylistic approach. The results of the AICW Corpus analysis are not only consistent but also straightforward in all the linguistic features analysed. Co-written texts demonstrate much fewer instances of self-mention, boosting, and reader engagement than do texts written by humans, and much more hedging. In the context of Appraisal Theory, these patterns indicate that in AI co-authorship a distinct academic voice is created that is depersonalized and somewhat homogenized by the rhetorical surface norms of academic writing, but lacking the epistemic positioning and rhetorical dynamism found in proficient academic writing.

The results of these findings have numerous implications. From the perspective of academic writing pedagogy, the study proposes that voice and stance as

important elements in academic writing should be carefully taught to students, as they do not exist outside the students' sphere of knowledge and preference, but rather are essential for the construction and communication of knowledge in academic discourse. Students who overuse AI tools may end up with grammatically sound, but unengaging and impersonal written work. It's a worry that extends beyond just this scenario, but is especially pertinent in places where academic writing in English is already a challenge, and where AI tools might appear to be an attractive shortcut, such as Pakistan.

The results have raised intriguing questions concerning authorship and originality in the era of artificial intelligence (AI) for academic publishing and research integrity. Where co-written texts regularly fail to show the characteristics of personal voice and epistemic engagement that are shared in the writing of an academic text, it may be necessary to find new ways to assess what it means to be the writer of an academic text. The present approach of merely stating authorial use of AI tools may not be enough to address a more fundamental question: Is a text truly the intellectual product of a human scholar?

The present study suggests some fruitful directions for future research. Future research should explore the disciplinary variation with regards to the voice and stance in relation to AI co-authorship, as they are likely to have different norms when it comes to epistemic expression and the presence of the author. Research might also explore how various AI tools and varying degrees of AI participation in the writing process impact a student's text. Research might also examine the effect of the different types of AI tools and varying degrees of AI involvement in the writing process on a student's text. This could highlight the evolution of academic writing over time for individual authors, with longitudinal studies monitoring the changes as they become more frequent users of AI. The perception and evaluation of AI co-written texts by readers (journal reviewers, university teachers, etc.) would also need further study, as would be the ability of readers to accurately identify differences in voice and attitude between AI co-authored and written texts without the help of computational tools.

There are some limitations of this study. The number of words in the corpus (about 720,000) is relatively large but is restricted to texts in English in three

Anglophone countries and may not be representative of other national or disciplinary contexts. The identification of co-written texts was based on the author disclosure and texts that were not marked as being created with AI support were not included, which may cause a selection bias. Larger and more diverse corpora, as well as more detailed information on the level and type of the AI assistance used, would give a more detailed picture in future studies. Yet the present work is a valuable contribution to the knowledge of the linguistic texture of scientific texts co-authored by human and machine writers and poses important questions of voice, identity and authorship in a growing context where the distinction between human and machine writing is increasingly blurred.

References

Ali, M. M., Ali, Y. A., Asadi, S., & Riaz, N. (2026). AI-enhanced speech recognition for advancing pronunciation skills. Revista de la Asociación Latinoamericana de Profesores de Inglés (ALAP).

Bhatti, M. S., Riaz, N., Ahmad, H., Asif, N., & Noor, M. (2024). Blended learning environments: Balancing traditional and digital instruction. Migration Letters, 21(S13), 1728–1741.

Hussain, M., Riaz, N., & Sukhera, F. A. (2026). Exploring grammatical distribution in spoken and written English: A corpus-based POS tagging study. Pakistan Journal of Social Science Review, 5(3), 541–559.

Hussain, M., Riaz, N., & Waheed, I. (2025). Language and ecology: An ecolinguistic study of Uzma Aslam Khan's Thinner Than Skin. International Premier Journal of Languages & Literature, 3(4), 868–890.

Hussain, M., Riaz, N., & Waheed, I. (2026). Use of adverbs across science and social science: A corpus-based study of Pakistani research articles. Dialogue Social Science Review (DSSR), 4(2), 19–40.

Ijaz, H., Sudozai, K. T., & Riaz, N. (2026). Analyzing digital icons as visual morphemes in Urdu-speaking contexts. Journal of Applied Linguistics and TESOL, 9(1).

Riaz, N., Sukhera, F. A., & Waheed, I. (2026a). Persuasive strategies in crowdfunding campaigns: Analyzing successful versus unsuccessful Kickstarter project descriptions. Liberal Journal of Language & Literature Review, 4(1).

Riaz, N., Sukhera, F. A., & Wasimullah, M. (2026b). Anthropocentric versus ecocentric metaphors in contemporary climate fiction: A cognitive linguistic analysis. Social Sciences & Humanity Research Review, 4(1), 2159–2169.

Riaz, N., Tahir, S., & Younas, Z. (2024). Cross-cultural pragmatic analysis of Pakistani and American political talk shows. Journal of Communication and Cultural Trends, 6(2), 20–43.

Sattar, G., Safeer, A. K., Pasha, M. I., Furqan, K. M. Y., & Riaz, N. (2021). Stereotypical ideologies towards women: Feminist poststructuralist discourse analysis of Malala Yousafzai's political speeches. Humanities & Social Sciences Reviews, 9(3), 1245–1257.

Sukhera, F. A., Riaz, N., & Tahir, S. (2024). Ethereal whispers of indigenous nature: Mazhar Nisar's spiritual odyssey at Mahogany Junction. Pakistan Languages and Humanities Review, 8(4), 306–315.

Tahir, S., Riaz, N., & Sukhera, F. A. (2025). Critical discourse analysis of America's former president Barack Obama's speech on the death of Osama Bin Laden. Pakistan Languages and Humanities Review, 9(3), 258–267.

Younas, Z., & Riaz, N. (2024). Drones and necropolitics: A critical discourse analysis of Barack Obama's selected speeches. International Research Journal of Management and Social Sciences, 5(2), 207–216.