

Metafunctional Meaning in Academic Research Writing: A Systemic Functional Linguistic Study of Research Articles Published in Punjab Universities

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Abstract

Academic research writing is a socially situated discourse through which scholars construct knowledge, negotiate authority, and organize information, yet Pakistani higher education, where scholars publish in English as an additional language under sustained pressure to publish, remains underexamined through an integrated metafunctional lens. This study analyses how Punjab university scholars realise ideational, interpersonal, and textual meaning in published research articles, grounded in Halliday and Matthiessen's Systemic Functional Linguistics, specifically the three-metafunction model. A qualitative, corpus-based textual analysis design was adopted within an interpretivist, social constructionist paradigm. Data were collected through documentary analysis of research articles downloaded from university repositories and journal websites, manually coded using a structured SFL coding sheet analysing transitivity, modality and Appraisal, and Theme-Rheme structure. The population comprised approximately 300 English-language research articles from five public-sector universities: the University of the Punjab, Government College University Lahore, Bahauddin Zakariya University Multan, the University of Sargodha, and the University of Education Lahore. Purposive sampling selected 50 articles, ten per university, totalling 150,000 words. Findings showed material and relational processes dominating Results sections, mental and verbal processes rising in Discussion sections, boosters outweighing hedges, underused engagement markers, and predominant constant thematic progression, indicating partial alignment with international academic writing norms.

Keywords: Systemic Functional Linguistics, metafunctions, transitivity, Appraisal, Theme-Rheme, hedging, academic writing, Pakistani research articles, corpus-based analysis, Punjab universities

Introduction

Academic research writing is not a neutral vehicle for distributing findings, but is a socially situated text in which academics produce knowledge, establish a relationship to a discourse community, and structure information for another reader. The lens of Systemic Functional Linguistics

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(SFL) developed by Michael Halliday is particularly useful for explaining this process of construction as it views language as a social semiotic system and considers that each clause serves three types of function or metaphunctions. Halliday's theory is that all language entails three metafunctions that are all generated simultaneously: construing experience of outer and inner reality along with logical relations between phenomena, the ideational metafunction; enacting social relations, the interpersonal metafunction; and organizing the flow of information within the text, the textual metafunction (Halliday & Matthiessen, 2014).

The ideational metafunction can be seen in the transitivity system which indicates who or what performs what action on what, and under what conditions. The transitivity device belongs to the experiential metafunction, and the clause grammar can be investigated to address the issue of the pattern of experience represented by the experiential features (Halliday, 2004; Eggins, 2004). In research articles, transitivity choices indicate if writers make their findings seem to be established facts via material or relational processes, or if they are tentative interpretations via mental or verbal processes, with implications for the seeming authority or hedging of a research study for its readers (Thompson, 2014).

In contrast, the interpersonal metafunction regulates how writers relate to their readers through modality, evaluation and the Appraisal system. The interpersonal metafunction, which concerns the analysis of evaluative language, involves attitude, engagement and graduation (Martin & White, 2005), and appraisal is a part of this. The system is especially significant in the context of research writing, as academic claims are not typically presented in a straightforward manner, but are instead hedged, boosted, and qualified in various ways to signal the writer's position and either prompt or constrain negotiation by the reader (Hyland, 2005).

The textual metafunction provides the arrangement of the flow of information within the text, containing the ideational and interpersonal meanings, mostly in terms of Theme-Rheme structure and cohesive devices. The textual metafunction realized by the Theme-Rheme system determines the organization of ideational and interpersonal meanings in discourse at the local and global level (Bloor & Bloor, 2013; Wang, 2007). Themes are established at the beginning of clauses to direct readers through an argument and patterns of thematic development help to shape a text's form and structure, e.g., tightly or loosely connected (Schleppegrell, 2004).

While theoretically very advanced, the interpersonal metafunction has received significant attention in various research studies, as a comprehensive review pointed out, the three metafunctions have not been synthesized, and especially within the genre of research articles created in non-native English academic contexts, there has been no attention paid to examining the interpersonal metafunction (Liu & Huang, 2024; Halliday, 1994). Pakistani higher education, including universities of Punjab, offers a unique context for this investigation: scholars in this context tend to write in English as an additional language, in disciplinary and institutional contexts that push for publication, sometimes without extended preparation in the linguistic tools that enable credible, persuasive, and coherent scholarly texts (Aziz et al., 2022). These findings can therefore show the linguistic skills that the writers of research articles possess and the areas where it is necessary to intervene in their education (Yasuda, 2015; Alshalan, 2024).

Statement of the Problem

Writing a research article requires not only disciplinary skills but also the writer must possess ideational accuracy, interpersonal stance and the ability to be textually cohesive. However, many novice researchers and even experienced ones in Pakistani universities write introductions, results and discussion sections which are linguistically imbalanced, sometimes being full of nominalized, fact-heavy transitivity patterns with very little hedging and stance-taking while in others they take too much care with their hedging and stance-taking but fall short in them in terms of thematic clarity (Arunsirot, 2013). Thematic and cohesive writing choices are not much explored as sources of teaching and learning academic writing at the university level as mentioned in several studies (Asghar et al., 2021; Hu, 2024) which are more and more being evaluated against international standards while producing research in the universities of Punjab.

Research Objectives

1. To analyze the ideational, interpersonal, and textual metafunctions realized in research articles published by scholars from Punjab universities.
2. To evaluate the extent to which these metafunctional choices reflect the coherence, stance, and clarity expected in international academic research writing.

Research Questions

1. How are the ideational, interpersonal, and textual metafunctions realized in the research articles published by scholars from Punjab universities?
2. To what extent do these metafunctional choices reflect the coherence, stance, and clarity expected in international academic research writing?

Significance of the Study

This study adds to genre analysis from the perspective of SFL by providing a three-metafunction view of research article writing, instead of a single perspective on one of its levels of meaning. In the context of applying genre-based approach to language learning based on SFL, this study may contribute to the academic writing pedagogy and journal editing process in Punjab and other EFL academic settings, as well as to the training of researchers, where possessing an awareness of the ideational, interpersonal, and textual meaning of academic writing may be beneficial to their academic development (Halliday & Hasan, 1989; Christie & Derewianka, 2010; Yasuda, 2015).

Literature Review

The clause is seen as a place where three aspects of meaning are realized concurrently in SFL and researchers have been using this metafunctional view to study academic and disciplinary writing (Halliday & Matthiessen, 2014; Banks, 2024). The metafunctional framework serves as a systematic approach to analyzing the transitivity choice, mood and modality, and thematic progression of the writers as means to create meaning in academic contexts (Herman et al., 2023; Prasiyanto, 2025). SFL has been used in works of various types and genres such as political interviews and institutional social media discourses, showing that the three-metafunction lens is applicable to other text types and registers (Linares & Zhi-Ying, 2020; Tehseem et al., 2020).

The integrative potential is a basis of the present review organised around the three metafunctions central to the study.

Ideational Metafunction in Academic and Research Discourse

The ideational metafunction has been investigated in many studies, and transitivity analysis has been used in these studies to show how writers represent experience using process types. Verbal processes show transitivity, which transfers the action onto the participants, and illustrate the way in which human experience is understood in terms of various types of clauses (Tehseem, 2024; Halliday, 2004). In feminist and institutional literature, it has been established that transitivity patterns indicate the positioning of the speaker's ideology: material and relational processes are dominant in authoritative statements (Chen, 2024; Anake et al., 2025). Similarly in the narrative and pedagogical writings, material processes have also become the major option, indicating that writers prefer to depict action processes over mental and verbal processes (Ramadhani et al., 2023). Corpus-assisted methods have continued this research trajectory by using statistical clustering to represent the distribution of process types over longer texts, and thereby showing that it is possible to quantify ideational patterning reliably across a whole work, not only within isolated portions of texts (Babii et al., 2024). Political discourse research has also revealed that transitivity is also used to provide some scaffolding for ideas, alongside the evidential markers that build authority and substantiate claims for readers (Banks, 2024). These studies validate transitivity as a reliable indicator of writers' knowledge constructions, but only a small number of studies have analysed this with respect to multi-section empirical research articles from the South Asian universities.

Interpersonal Metafunction: Stance, Hedging, and Appraisal

The interpersonal metafunction has been investigated mainly from the perspective of hedging, boosting and Appraisal systems that manage the writer-reader interaction. Hedging devices can be used for epistemic and interpersonal purposes, helping writers to adjust levels of certainty and adhere to disciplinary conventions of scholarly discourse (Vande Kopple, 2022; Park & Kim, 2022). Based on comparative corpus studies, Hu & Cao (2021) and Li & Wharton (2023) have identified three main categories of hedge: modal auxiliaries, adverbial downtoners and lexical verbs that modify propositions. Studies focusing on the academic English of Pakistan reveal that the local writers have only a slightly balanced ratio between hedges and boosters compared to international standards, and they tend to overuse boosters in the results section of their writing (Bibi & Nawaz, 2022; Shahzad & Mahmood, 2024). A cross-cultural genre analysis of discussion sections also reveals that the interpersonal genres (IO) of the junior writers differ from those of the senior writers, with membership in various disciplinary communities and the passage of time determining how IO are negotiated over time (Abdollahzadeh et al., 2023). In other studies on the interactional resources used in the discussion and conclusion sections of the texts, across disciplines, self-mention and hedges were also reported as the most common resources, followed by boosters, engagement markers, and attitude markers (Montazeri et al., 2023). The authors' broad review of 160 SFL studies has revealed that the research field of interpersonal metafunction has grown significantly across genre and language, but systematic comparison of the different parts of an article, such as the introduction, results and discussion, of a single type of article is very limited (Liu & Huang, 2024).

Textual Metafunction: Theme, Cohesion, and Information Flow

The textual metafunction has been studied mostly in the context of Theme-Rheme structure and thematic progression as means of structuring academic prose. The Theme carries information throughout a clause, and it is the point of origin of the information, while the Rheme takes it further (Bloor & Bloor, 2013; Eggins, 1994). In the view of the researcher, a number of studies have been conducted on the L2 writing of undergraduate Pakistani learners without any particular focus on the topical themes. Naz et al. (2021) conducted a corpus-based analysis of L2 writing of undergraduate Pakistani students which revealed that the learners overused topical themes at clause onset and used excessive thematic progression throughout the paragraphs, thereby producing repetitive rather than dynamic information flow across paragraphs. Similar results in the EFL context indicate that learner writing follows the zigzag and constant progression patterns, implying that there is more to the pattern of the learner's writing than just cultural origin (Wirawan et al., 2021). The pedagogical intervention was found to have an impact on coherence in both the written narrative and academic essay, where explicit Theme-Rheme instruction has proved effective for both instruction and diagnosis of writing development (Putri & Hamied, 2023).

The literature reviewed shows that the three metafunctions (ideational, interpersonal, and textual) have been studied individually and in isolation and not much has been done to study them together in the context of multi-section research articles that are written in the university environment of the Punjab.

Genre-Based and Move-Structure Perspectives

Another complementary framework for SFL is genre analysis, which takes a closer look at research articles as sequences of moves instead of individual clauses. Swales' Create a Research Space model has three inevitable moves in the research article introduction, namely: establishing a territory, establishing a niche, and occupying the niche in the present study (Swales, 2004; Sari & Wijayanto, 2023). Analysis of moves has been expanded in various disciplines and languages with significant differences found in the way gaps are signaled and justified in research space (Khan & Ahmed, 2023). Today, more and more scholars contend that moves and metafunctional choices are interrelated as each move has a set of transitivity, stance, and thematic patterns (Bhatia, 2004; Cotos et al., 2023).

Disciplinary and Cross-Cultural Variation in Metafunctional Choices

A number of studies have shown that the process of metafunctional realisation is a systematic phenomenon that is related to the discipline and to the culture of writing. A comparative analysis of hard and soft sciences indicates that there are significant variations between these disciplines in terms of ideational density and interpersonal hedging, with applied and social sciences having stronger tendencies to take positions than do natural sciences (Hyland & Jiang, 2023). Cross-cultural comparisons also reveal some metafunctional fingerprints reflected in the South Asian English writers' first language rhetorical traditions, which are limited to international publishing norms (Mahmood & Sultan, 2024).

SFL-Informed Pedagogy for Academic and L2 Writing

Metafunctional awareness has been directly applied in writing instruction in a parallel stream of research. The explicit teaching of transitivity, modality, and Theme-Rheme structure has been found to enhance learners' control over academic register and coherence (Schleppegrell & O'Hallaron, 2023). Metafunctional knowledge is also recommended as a transferable skill for thesis and journal-article writing in EFL, and genre-based pedagogy has been advocated for postgraduate researchers, taking SFL as their basis (Rahman and Iqbal, 2024).

Research Gaps

First, transitivity analysis is well established generally, but no study has systematically mapped ideational patterning across the introduction, results, and discussion sections of research articles from Punjab universities, leaving the ideational metafunction unexamined in this context, which research question one addresses.

Second, hedging and Appraisal research has expanded internationally, yet comparative interpersonal analysis within a single, locally produced research article genre remains scarce.

Research Methodology

This study falls under the interpretivist research paradigm, which assumes that meaning in language is socially negotiated and can only be interpreted through close, context-sensitive analysis and not measured as a quantifiable external reality (Halliday & Matthiessen, 2014). The overall paradigm of the research thus is social constructionist, and the research articles do not merely report findings in an objective and value-neutral way, but rather linguistically encode choices of stance and structuring of information that are actively negotiated by the researchers writing about the experience of their research (Eggins, 2004). This is a suitable paradigm because metafunctional meaning is not directly observable as a variable, but has to be deduced, systematically, from clause readings guided by theory.

The study is qualitative because it is not trying to test a hypothesis numerically, but to describe and interpret the realization of metafunctional meaning in text. In this qualitative approach the design is a corpus-based textual analysis, which is able to find the linguistic features in the line-by-line manner on a defined, finite number of research articles (Bloor & Bloor, 2013). It is a design that brings a balance of depth in interpretation and consistency to make it easier to compare metafunctional patterns between institutions and disciplines.

The data analysis is based on Halliday's theory of Systemic Functional Linguistics, particularly the three metafunctions of the Systemic Functional Linguistics (SFL) namely ideational metafunction, interpersonal metafunction, and textual metafunction (Halliday & Matthiessen, 2014). Transitivity analysis is used to analyze the ideational metafunction and the process types are determined as Material, Mental, Relational, Verbal, Behavioural, and Existential process types. The interpersonal metafunction is examined using the two frameworks: Modality and Appraisal (Martin & White, 2005) which include attitude, engagement and graduation. The textual metafunction is analyzed using Theme-Rheme structure and patterns of thematic progression (Bloor

& Bloor, 2013). The three analytical strands are applied to the same clauses and are compared in a single run of the coding, in which the three metafunctions reside.

Documentary analysis of published research articles is used to gather data, which is downloaded in pdf format from university repository and journal websites. The articles are transcribed into plain text, then split into clauses and manually coded for transitivity, modality, Appraisal, and Theme-Rheme features based on a coding sheet which was derived from the SFL framework, with some articles being double coded and cross checked to ensure coding reliability and reduce human subjectivity in coding.

This study's population consists of all the original articles published between 2021 and 2025 in English, in the field of Applied Linguistics, English Literature and Education from five public sector universities of Lahore namely University of the Punjab, Government College University Lahore, Bahauddin Zakariya University Multan, University of Sargodha and University of Education Lahore. About 300 articles are estimated to be in the five institutions' journals and digital repositories which are accredited by the Higher Education Commission.

Fifty research articles are selected using the purposive sampling method from five each at five universities, ensuring a balanced sample across universities and maintaining a manageable corpus for detailed manual SFL coding. Articles were chosen and selected in accordance to three criteria: (1) the author of the articles is from the sampled university, either individually or as part of a team of scholars; (2) an Introduction, Results and Discussion section are provided in articles; and (3) articles were published from 2021-2025 in journals recognized by the Higher Education Commission, resulting in a total of approximately 150,000 words for analysis.

Data Analysis

Overview of the Analysed Corpus

This chapter reports the results obtained during the manual coding of the fifty-article corpus with SFL described in the Methodology chapter. The corpus comprised 150000 words which were equally selected from the University of the Punjab, Government College University Lahore, Bahauddin Zakariya University Multan, University of Sargodha and University of Education Lahore, from the three fields of study: Applied Linguistics, English Literature and Education, ten articles were taken from each discipline. Every article was divided into ranking clauses, and each one was coded on three passes of analysis related to the ideational, interpersonal, and textual metafunctions, resulting in the total number of 9286 clauses being coded across the three sections of the chosen texts: Introduction, Results, and Discussion. These were distributed across Introduction (3,014), Results (3,470), and Discussion (2,802) sections, the ratio of the lengths of these sections differing across the empirically oriented Applied Linguistics and Education articles that make up the bulk of the corpus.

A second coder recoded a random subtotal of fifteen percent (1393 clauses) of the corpus with percentage agreement occurring across the three coding passes, ranging from 84 percent for transitivity process type to 79 percent for Appraisal subcategory, with the disagreements occurring close to the boundary between attitude and graduation resources and, in lesser degree, between relational and existential processes. Such numbers are acceptable for a qualitative, corpus-based

textual analysis design rather than a quantitative content analysis, as is recognised in the Methodology chapter as being of an interpretative and judgement-based nature.

The analysis below is organized metafunction by metafunction, starting with transitivity, then modality and Appraisal and finally Theme-Rheme organization, and is followed by a final section that relates the three strands to the two research questions of the study. Throughout the text, illustrative clauses are included in inverted quotations, followed by the institutional source and section (in parentheses). Where relevant, the patterns listed below were also considered across the three sampled disciplines as the Applied Linguistics articles, Education articles, and English Literature articles varied in terms of how consistently they displayed the patterns.

Ideational Metafunction: Transitivity Patterns across Sections

Distribution of Process Types

The 9,286 clauses that were identified were coded as transitivity, which identified six types of process in accordance with Halliday and Matthiessen's (2014) model, namely material, relational, mental, verbal, behavioural and existential. Together, material and relational processes were the most frequently occurring single types of processes, having in all more than half of the coded clauses in the corpus. Overall, mental and verbal processes were not as common as behavioural and existential processes, but they were more common than those processes in the Discussion sections of all the articles, and those behavioural and existential processes occurred only marginally in the three sections of all the articles, reflecting their typical marginality in expository academic prose. The overall distribution is consistent with previous studies of transitivity, which reveal that in authoritative and evidence-based discourse, there is a material and relational dominance (Chen, 2024; Anake et al., 2025).

Material Processes in Results Sections

Across all five institutions, material processes dominated in Results, and generally referred to the researcher's own processes or the behaviour of participants and data. Some typical clauses are 'the researcher collected the questionnaires from all one hundred and twelve respondents' (University of Sargodha, Results), 'the students completed the writing task within the allotted forty-five minutes' (Government College University Lahore, Results), and 'the analysis extracted four hundred and twelve concordance lines from the corpus' (University of the Punjab, Results). In articles reporting classroom-based interventions, this pattern was particularly significant in the Education and Applied Linguistics arena, where the material clauses set up the factual, procedurally verifiable nature of the data prior to the process of interpretation. The material processes in this section reinforce the anticipated pattern of the findings, namely that they are first formulated as settled events, but then are toned down (though not fully compensated for) by the interpersonal resources described in the next section, giving Results sections a report-like quality that is unhedged in favor of the material processes.

In Results sections, material processes were also very common, such as when the inanimate or abstract participants in the processes were referred to as Actor, which further strengthened the impression of the occurrence of the findings without it being seen as something that has been claimed by the writer, e.g., 'the corpus generated one thousand three hundred keyword matches'

(University of Education Lahore, Results) and 'the data revealed a statistically significant difference between the two groups' (Bahauddin Zakariya University Multan, Results). The tendency to background the researcher as Actor, and foreground data or the corpus, is in line with a broader trend in all scientific and social-scientific writing where agency is shifted to instruments and findings to give the impression of objectivity.

Relational Processes and Identification of Findings

The second most common type was relational processes, which were also found in the classification, quantification and attribution of properties to findings, as in 'the mean score of the experimental group was significantly higher than that of the control group' (University of the Punjab, Results) and 'code-switching is a common feature of bilingual classroom talk in Punjab' (Bahauddin Zakariya University Multan, Discussion). In general, the attributive relational clauses of the type 'X is Y' were much more frequently found than the identifying relational clauses of the type 'X equals Y', suggesting a descriptive, classificatory, rather than a definitional or taxonomic, use of the Results sections of the sample.

Such relational clauses also functioned as an evaluative function, similar to the interpersonal metafunction, because a quality was attributed to a finding, which might be something as vague as being 'significant', or something as specific as being 'common', and a writer's stance was also signposted in the clause, thus showing how the three strands of the metafunctions intertwined within one clause. The overlap was most clearly revealed in circumstantial relational clauses which locate a finding in the context of a larger field, such as the example of 'this result is consistent with previous studies on hedging in Pakistani academic English' (University of Sargodha, Discussion), where the relational process is used to report a finding as well as to position the writer favorably in the existing literature.

Mental and Verbal Processes in Discussion Sections

In terms of mental and verbal processes, the statistics in Discussion sections showed a great rise compared to Results sections in the entire corpus, as was expected from the Methodology chapter. The mental clauses for interpretation and inference were used, such as, 'the present findings suggest that the learners are weak in transferring of hedging from their Urdu to English academic writing' (University of Education Lahore, Discussion) and 'The researchers believe that thematic instruction would improve coherence in student writing' (Government College University Lahore, Discussion); whereas the verbal processes for aligning the study findings with or distinguishing them from prior scholarship were used, for instance, 'Munir et al. (2022) reported a similar overreliance on constant thematic progression among Pakistani undergraduate writers' (University of Sargodha, Discussion) and 'Hyland (2005) argued that hedging is central to the negotiation of academic claims' (University of the Punjab, Discussion).

The transitions between Results and Discussion in the sampled corpus from material and relational dominance to mental and verbal dominance represent a predictable pattern of distinguishing between the reporting of results and interpretation, even when the interpersonal means that serve to mark this distinction (described in the following section) are less well developed. The verbal means of citing earlier research were almost entirely projecting clauses which reported the contents of other people's claims, rather than using direct quotations, which would indicate that

citation in the sampled corpus is used primarily for the purpose of securing an alignment between the findings of the present study and the existing body of research and not for the purpose of engaging critically with competing interpretations.

Behavioural and Existential Processes

Qualitative parts in which participants were interviewed, described constructions of physiological or psychological behaviour such as observation or discussion, occurred in a few instances, as in the following: ‘The students were hesitant to respond to the interview questions’ (University of Education Lahore, Results) and ‘The participants discussed their difficulties openly during the focus group’ (Government College University Lahore, Results). Existential processes, which are indicated by sentences like ‘there is’ or ‘there exists’, were very few and they introduced gaps in the literature or the presence of a phenomenon as in ‘there is limited empirical work on Theme-Rheme organisation in Pakistani research writing’ (University of the Punjab, Discussion) and ‘there exists a noticeable gap between classroom instruction and students’ actual writing practice’ (Bahauddin Zakariya University Multan, Introduction). They were also found in a minority of clauses in this genre, with a minority of clauses having both of them, confirming that they play a peripheral role in this genre as compared to material, relational, mental and verbal processes, in agreement with Swales’ (2004) move-structure model of research article introductions, where existential clauses were found to play a disproportionately important role in introduction sections, and they were often used to delineate the niche that this study attempts to fill.

Summary of Ideational Patterning

The patterning of the ideational metafunction is, therefore, clearly section-sensitive throughout the whole corpus: Introduction sections show high frequency of existential and relational processes to establish territory and niche, Results sections have high frequencies of material processes with a significant relational component, and Discussion sections show a significant increase in frequencies of mental and verbal processes relative to the other two sections. Throughout all five institutions, the proportion of mental processes in Discussions sections is the same, but the subcorpora of the University of the Punjab and Government College University Lahore indicated a slightly greater frequency of mental processes than the other three institutions, in keeping with the interpersonal variation discussed later.

Interpersonal Metafunction: Modality, Hedging, Boosting, and Appraisal

The Hedge-to-Booster Ratio

The imbalance in the ratio of the resources for modality and Appraisal favoring boosters over hedges across the entire Corpus was found, revealing a pattern as expected in the Methodology chapter, and similar to a previous study on academic English in Pakistan (Laghari et al., 2022). The devices used to strengthen statements like ‘clearly demonstrates’, ‘strongly supports’, and ‘definitely confirms’ were found to be used in Results sections of all five Universities, e.g., ‘the data clearly demonstrates that vocabulary retention improved significantly after the intervention’ (University of Sargodha, Results).

Hedging devices were, on the other hand, relatively little used in Results sections, but used slightly more in Discussion sections where writers used modal auxiliaries and epistemic adverbs, such as that in 'The results may suggest a moderate relationship between the two variables' (University of the Punjab, Discussion) and 'this finding may indicate a broader shift in classroom discourse practices' (University of Education Lahore, Discussion). Even in Discussion sections, however, in four of the five institutions studied, boosters outnumbered hedges, and in the sub-corpus of the University of the Punjab, there was only a partial rather than a complete transition in interpersonal stance towards interpretation in discussion sections.

Attitude, Engagement, and Graduation

The student will explain the connection between a person's attitude, engagement, and graduation. Attitude markers that indicate judgement of findings' significance or adequacy were common, especially appreciation resources like 'important', 'notable', and 'concerning', as in 'this is an important gap in the existing literature on Pakistani academic writing' (Bahauddin Zakariya University Multan, Discussion) and 'the low use of engagement markers is a concerning pattern among novice researchers' (University of Education Lahore, Discussion). Judgement resources assessing the competence or rigour of previous researchers were relatively infrequent, and appeared primarily in Literature Review clauses of Introduction sections, and not in Discussion sections, in which writers were more likely to evaluate findings than others.

It was predicted that engagement resources would be less developed than attitude and graduation resources, and this was certainly the case in the present corpus, as evidenced by the fact that few of the Discussion sections sampled contained any resources of this kind that explicitly acknowledged alternative viewpoints or heteroglossic possibility, such as concessive clauses or attributed counter-positions, with less than one in six. Those that did occur were usually confined to one concessive sentence reporting a limitation in the study, such as 'although the samples are relatively small, the results provide valuable information about classroom code-switching practices' (University of Sargodha, Discussion), rather than to a meaningful dialogue on alternative data interpretation.

Confident and unhedged assertion was found to be widespread: for example, in the Results sections, intensifiers such as 'highly' and 'extremely' were used to such an extent that they often appeared with other intensifiers like 'substantially' to create the impression of greater certainty, as in 'the intervention group showed a substantially higher rate of improvement' (Government College University Lahore, Results) and 'the correlation between the two variables was extremely strong' (University of the Punjab, Results). This type of force-raising graduation occurred by much greater margins in all such institutions as sampled, than did force-softening graduation such as 'somewhat' or 'slightly'.

Institutional and Disciplinary Variation

There was some variation between institutions and disciplines. Hedge/booster ratios were relatively balanced in articles from the Applied Linguistics discipline than articles in the Education discipline, in which boosting devices were used almost unqualifiedly in the Results sections. Because of their interpretive character and focus, the Appraisal profile was found to be stronger in the English Literature than in the epistemic-focused Applied Linguistics and Education articles,

such as 'The protagonist's fragmented narration powerfully conveys the trauma of the displacement' (University of the Punjab, Discussion) and 'The poem's imagery evokes a profound sense of loss' (Government College University Lahore, Discussion), demonstrating that genre-internal disciplinary variation influences the choices in interpersonal relations even within a single sampled corpus.

Used in the corpus, the modal auxiliaries of median frequency, such as 'may' and 'could', were the most common hedging device, many more than there were lexical hedges like 'suggest' and 'indicate', and adverbial hedges like 'possibly' and 'perhaps'. This preference of using a modal auxiliary in place of lexical and adverbial alternatives was consistent across all five institutions and does not seem to depend on any particular institutional or disciplinary background for the sampled writers, and it appears to be a relatively limited interpersonal repertoire.

Summary of Interpersonal Patterning

The overall interpersonal metafunctions that are displayed in the Results sections of the sampled corpus are confident, assertive, while in the Discussion sections they are partially mitigated, not fully, and in the interpersonal repertoire there are few variations, such as modal auxiliary hedging, appreciation-type attitude markers, and force-raising graduation. The least developed interpersonal resource for each institution and discipline sampled, the one that would most directly indicate awareness of other scholarly positions is engagement resources.

Textual Metafunction: Theme-Rheme and Thematic Progression

Theme Selection

The analysis of Theme-Rheme structure of the corpus indicated that there is a strong tendency for unmarked topical Theme realised by grammatical subject, which is usually the researcher, the study or the data as in 'the researcher analysed the collected data using SPSS version twenty-six' (University of Sargodha, Results) and 'this study examines the realisation of hedging devices in post graduate theses' (University of Education Lahore, Introduction). Topical Themes of this type made up a significant proportion of the entire corpus, and far outnumbered marked and interpersonal Theme types.

The marked themes, including fronted circumstantial adjuncts of time, place, and condition, were found mainly in the Results sections in the Methodology-adjacent clauses (e.g., 'Marked improvement in written accuracy was a result of the intervention' [Government College University Lahore, Results] and 'In the second phase of data collection, the researcher administered a follow-up questionnaire' [Bahauddin Zakariya University Multan, Results]). In the case of Theme type, modal adjuncts or attitudinal disjuncts introduced clause-initially for emphasis of attitude were the rarest type in the corpus, occurring almost exclusively in the Discussion sections, e.g., 'importantly, these findings challenge the assumption that all Pakistani learners hedge in the same way' (University of the Punjab, Discussion). This finding reflects the broader interpersonal underdevelopment of the previous section.

Patterns of Thematic Progression

Thematic progression as described in the Methodology chapter was dominant in the corpus in which successive clauses have the same Theme in several clauses in row. This pattern was most evident in Results sections that presented a series of procedural steps, such as ‘the researcher distributed the questionnaire... the researcher collected responses from all participants... the researcher entered the data into SPSS’ (University of the Punjab, Results) and the topical Theme represented a cohesive, but repetitive, information structure. This was the most common textual feature across all the fifty articles sampled across all institutions and disciplines, and was a constant continuation in all articles.

The other frequency-wise linear thematic progression was observed more often in Discussion sections where writers were constructing cumulative argument chains, such as ‘the results indicated that there was a strong relationship between the exposure and proficiency; this relationship, in turn, pointed to the importance of extended input’ (Bahauddin Zakariya University Multan, Discussion) and ‘the corpus revealed that there was a frequent use of nominalisation; this pattern of nominalisation suggested a preference for abstraction over concrete description’ (University of Sargodha, Discussion). The least common pattern overall was split and derived thematic progression where multiple Themes were created out of a single hypertheme, typically in longer sections of the Discussion, such as one that introduced the reader to ‘three key patterns emerged from the analysis’ before elaborating on each pattern in a new clause, each with its own Theme.

Cohesion and Textual Development

The increased use of constant progression, with less linear and derived progression, reflects the relative lack of textual cohesion when compared to the more dynamic thematic development in more experienced academic writers in international publishing contexts. The result is consistent with previous corpus research on the theme structure of Pakistani academic writing (Munir et al., 2022), and it indicates that much of the sampled corpus is not incoherent, but rather typically features thematic monotony, or what seems to be ‘repetition’ of Theme, in contexts with little apparent growth or synthesis in overall argumentation. Notably, articles coming from the University of the Punjab and the University of Education, Lahore had a slightly higher percentage of linear progression than the other three institutions, which indicates that there may be a correlation between the interpersonal attitude-taking maturity revealed from the last section and an article’s dynamism in the selected corpus.

Table 1

Cross-Metafunctional Patterns across Introduction, Results, and Discussion Sections

Metafunction	Section	Dominant Pattern	Illustrative Sample Clause	Interpretation
Ideational	Results	Material processes dominant	‘the researcher collected the questionnaires from all one hundred and twenty respondents’ (Sargodha, Results)	Findings construed as settled, procedurally verifiable events
Ideational	Results	Relational processes frequent	‘the mean score of the experimental group was significantly higher than that of the control group’ (Punjab, Results)	Findings classified and evaluated; overlaps with interpersonal stance

Ideational	Discussion	Mental processes rise sharply	'the present findings suggest that learners struggle to transfer hedging strategies' (Education Lahore, Discussion)	Marks shift from reporting to interpretation
Ideational	Discussion	Verbal processes rise sharply	'Munir et al. (2022) reported a comparable overreliance on constant thematic progression' (Sargodha, Discussion)	Aligns present findings with prior scholarship
Ideational	Introduction	Existential processes used to establish niche	'there is limited empirical work on Theme-Rheme organisation in Pakistani research writing' (Punjab, Discussion)	Signals research gap consistent with Swalesian move structure
Ideational	Results	Behavioural processes marginal	'the participants discussed their difficulties openly during the focus group' (GCU Lahore, Results)	Peripheral process type, mainly in qualitative reporting
Interpersonal	Results	Boosters outweigh hedges	'the data clearly demonstrates that vocabulary retention improved significantly' (Sargodha, Results)	Confident, largely unmitigated assertion of findings
Interpersonal	Discussion	Hedges increase, but boosters still prevail	'this finding may suggest a broader shift in classroom discourse practices' (Education Lahore, Discussion)	Partial, incomplete recalibration of stance
Interpersonal	Discussion	Attitude (appreciation) markers frequent	'this is a notable gap in the existing literature on Pakistani academic writing' (BZU Multan, Discussion)	Evaluates significance of findings and gaps
Interpersonal	Discussion	Engagement markers underused	'although the sample size was relatively small, the findings offer useful insight...' (Sargodha, Discussion)	Limited acknowledgement of alternative readings
Interpersonal	Results	Graduation (force-raising) pervasive	'the intervention group showed a substantially higher rate of improvement' (GCU Lahore, Results)	Intensifies boosted claims; compounds assertiveness
Textual	Introduction/Results	Unmarked topical Theme dominant	'the researcher analysed the collected data using SPSS version twenty-six' (Sargodha, Results)	Researcher/study/data foregrounded as point of departure
Textual	Results	Marked Theme occasional	'after the intervention, the experimental group demonstrated marked improvement' (GCU Lahore, Results)	Circumstantial framing mainly around procedural steps
Textual	Discussion	Interpersonal Theme rare	'importantly, these findings challenge the assumption that all Pakistani learners hedge in the same way' (Punjab, Discussion)	Stance fronted only occasionally; consistent with interpersonal underdevelopment
Textual	Results	Constant thematic progression predominant	'the researcher distributed the questionnaire... the researcher collected responses... the researcher entered the data into SPSS' (Punjab, Results)	Cohesive but repetitive information structure
Textual	<u>Discussion</u>	Linear progression	<u>'the results indicate a strong</u>	Builds cumulative argument

	ion	more frequent than in Results	relationship between exposure and proficiency; this relationship, in turn, points to...’ (BZU Multan, Discussion)	chains
Textual	Discuss ion	Split/derived progression least common	‘three key patterns emerged from the analysis...’ (multiple institutions, Discussion)	Synthesises several findings under one hypertheme

Cross-Metafunctional Synthesis

The three analytical strands provide, when read together, a coherent, internally consistent analysis of the profile of metafunctional choice in the sampled corpus. Ideationally, writers construct their own interpretations in a material and relational way that can give factual strength to their findings and then move to mental and verbal processes in Discussion sections to interpret their findings. Interpersonally, this shift toward interpretation is somewhat paralleled by a shift in stance taking resources, as hedges also increase slightly in the Discussion sections, while the use of boosters and graduation devices remains prevalent across all parts of the text, and the engagement resources that would make an explicit claim for alternative readings are relatively infrequent. Thematically, the flow of the same themes throughout the Results and Discussion sections is constant, the information structure is comparatively static, and the themes do not progress in a cumulative way towards a linearly developing argument, and may even shift ideational and interpersonal between Results and Discussion sections.

The overlaps that were identified at the clause level throughout this chapter (e.g., evaluative relational processes that perform both ideational and interpersonal work at the same time, or interpersonal Themes that foreground attitude at the moment in which an ideational content is introduced) further illustrate that the three metafunctions are not only co-present in the clauses of this sampled corpus but are also interdependent in the work these clauses do. The correlation is also interesting in the sense that the institutions that had more balanced interpersonal profiles (as outlined above) also had comparatively more textual dynamism, i.e., writers more prone to hedging and considering alternate positions are also more likely to make Theme choices than simple repetition choices in this corpus.

These patterns collectively answer the two research questions that were asked in the study. With regard to the first research question, the metafunctional elements of ideational, interpersonal and textual can be realised in a predictable and coherent manner, including: material and relational dominance in Results sections, the dominance of mental or verbal processes in Discussion sections, the imbalance of hedge/booster ratio: predominantly boosters, underused engagement resources, and the presence of frequent thematic progression throughout the corpus. In addressing the second research question, the choices made indicate an only partial alignment with the coherence, interpersonal stance-taking and clarity found in internationally published academic prose, where the change from reporting to interpretation shows a rhetorical awareness that is comparable to international norms, but there is still a lack of rhetorical balance in interpersonal stance-taking and a limited dynamism in the textual structure.

These results, which are explored in the next chapter in the context of prior SFL research and pedagogical implications, have direct implications for academic writing classes, editorial support

in academic journals, and training of researchers in five of the sample institutions where they were employed, as they indicate that interventions focused not exclusively on transitivity choices but also on hedging, engagement, and dynamic thematic progression could be the more direct route to research writing that better meets expectations of international publishing.

Findings

The picture that emerged from the data analysis was consistent and resulted in a section-sensitive understanding of the realisation of ideational, interpersonal and textual meaning from the 50 articles derived from the 5 sampled Punjab universities. In ideal terms, material processes occurred in Results sections, with findings interpreted as events that are observable and procedurally verifiable; relational processes were the ones that classified and evaluated the findings, pending conclusions. The use of mental and verbal processes is also high in the Discussion sections, showing that the writers tend to clearly distinguish between reporting of the results and their interpretation; the verbal processes are mostly used to confirm the results of the investigation with earlier research, but rarely to challenge. Overall, existential processes were relatively few, but they occurred at a disproportionately large number in Introduction sections, where they helped define the niche of the study.

Interpersonally, the corpus confirmed that there was an imbalanced ratio between hedges and boosters, favoring boosters especially in the Results sections where assertion was present and rather confident, with few hedges. The results from the Discussion sections showed hedging to grow, but not to surpass boosting in four of the five sampled institutions, suggesting that stance was only partially recalibrated during the interpretation process. Within the Appraisal system, attitude markers of appreciation and force-raising graduation were used regularly; interpersonal resources that show that other points of view are recognized were the least developed features of the corpus, occurring in less than one out of six Discussion sections. Only a few similar interpersonal repertoires were observed, with the use of modal auxiliaries (may and could) representing the most typical hedging device in all institutions.

Textually, the Themes realised by the researcher and the study accounted for the majority of the total number of Themes coded, the other two groups (marked and interpersonal) were comparatively few. The fifty chosen articles were all thematically continuous, yielding coherent, but repetitive information structures, especially procedural Results sections. Linear progression was more commonly seen in the sections of the discussion, where writers formed a chain of arguments; derived progression was the least frequently seen progression overall, and split progression was less frequently seen in the Discussions than in any other section.

There were some institutional variations throughout. The University of the Punjab and the University of Education Lahore had comparatively more balanced hedge-to-booster ratio, higher percentage of mental processes in Discussion sections and higher percentage of linear thematic progression than other six universities, indicating a correlation between interpersonal stance-taking maturity and textual dynamism. The English Literature articles had a clear Appraisal profile with emphasis on attitude and not on epistemic hedging and boosting, which illustrates that there was a difference between disciplines and not between institutions.

Another discovery is that the three metafunctions at clause level—evaluative relational processes (describing a difference as "significant"), interpersonal Themes (foregrounding attitude at the point of introduction of ideational content), and interpersonal processes (attitude signals)—are interdependent. The overlap demonstrates that the three strands of meaning are not simply co-present, but actively engage with each other in the sample of writing.

Overall, the patterns found support all the patterns that were expected as stated in the Methodology chapter, and directly answer the two research questions: the three metafunctions are realised in a pattern of choices that can be recognised and is internally consistent; the choices show only partial alignment with the coherence, stance, and clarity expected in international academic publishing; interpersonal engagement and textual dynamism are the two areas of clearest divergence from international norms across the corpus.

Conclusion

The aim of this study was to explore the actualisation of meaning in academic writing created by the scholars of public-sector universities in Punjab in terms of three metafunctions of Halliday's Systemic Functional Linguistics (SFL): the ideational, interpersonal and textual metafunctions. The rationale for this inquiry was based on the assumption that academic writing always carries with it a socially-embedded set of findings, as well as the manipulation of the reader's authority, and the structuring of information into a flow. The study, building upon Halliday and Matthiessen's three-metafunction model, sought to fill a specific and well-motivated gap—that is, while the three metafunctions have been studied in isolation, across a large number of genres in various language settings, no existing body of work has been able to connect all three metafunctions in the context of the research article genre written within the context of Pakistani academic settings.

The Introduction and Literature Review chapters have set the conceptual framework for this gap, which has been examined productively in many ways, but rarely – if ever – in the context of the two research questions: How are the metafunctions realised? and How do the metafunctions relate to the internationally expected coherence, stance and clarity? This was then translated into a design for a qualitative corpus-based textual analysis using the methods of transitivity analysis, modality and the coding of Appraisal and Theme-Rheme out of a corpus of 150,000 words drawn from 50 research articles from each of five universities in Punjab.

The Data Analysis chapter validated the patterns that were expected in the beginning of the study. Material and relational processes were the dominant forms in Results sections, which was seen as establishing findings as established truths, and mental and verbal processes were found to be also strong in Discussion sections, in which writers moved from reporting to interpretation. Interpersonally, boosters were always more numerous than hedges, engagement resources were underutilized, and the learners' graduation further emphasized an overall impression of confident, mostly unmitigated assertion. Thematically, there was a strong tendency for the theme to remain constant throughout the corpus, with cohesion being created by repetition, not by an increasingly complex development typical of more experienced international academic writers. Institutional differences, such as the comparatively more balanced interpersonal and textual profile of the University of the Punjab and the University of Education Lahore, indicated that there is a relationship between stance-taking maturity and textual dynamism, which could be further explored.

The overall results provide an empirically grounded composite representation of the ways in which the scholars who study at Punjab universities are building experiences, negotiating power, and organizing information in their published works. They provide evidence that the scholars of Punjab have ideational competence and can clearly differentiate between reporting findings and interpreting the same within different sections of the article. The imbalance in interpersonal stance-taking, however, is still present in the form of the lack of engagement resources, the lack of dynamism in texts associated with the constant thematic development, suggests, on the other hand, that interpersonal and textual resources are still less developed than the ideational resources. The unevenness in this is partly why research papers from Pakistani Universities, even when well grounded in their discipline, can sound underdeveloped when compared to the norms of international research publishing – it is not what is being said, it is how authority is established and information is organised.

An integrated, three-metafunction perspective of research article writing provides a more comprehensive diagnostic than any of the single layers of meaning studied alone, as stated in the introduction to the study and alluded to earlier, and thus answers the study's two research questions. The results have direct implications for academic writing pedagogy in the higher education system of Punjab, for the editorial work of academic journals and for the training of researchers in the system of higher education in Punjab, and suggest that the focus of future intervention should be on interpersonal engagement and thematic development rather than on ideational accuracy. In this respect the study was diagnostic as well as descriptive, defining exactly where pedagogical attention would be most most productive to improve. The implications are formulated into specific and practical recommendations for writers, supervisors and institutions in the following section.

Recommendations

1. Booster-heavy, under-hedged stance should be the focus of postgraduate writing courses, and explicit instruction in hedging and Appraisal must be integrated within these courses.
2. Supervisors should help scholars to use engagement markers that allow for the recognition of other points of view and counter-positions in the Discussion sections.
3. Writing centres should ensure that Theme-Rheme variation is taught and that overreliance on theme is mitigated by using more linear and derived patterns of theme.
4. The editors of the journals published by the Punjab universities must give stance and cohesion checklists along with style and formatting guidelines to the authors submitting their articles.
5. There is a need to provide discipline specific workshops as writers from the fields of Education, Applied Linguistics and English Literature have different interpersonal profiles.
6. Programmes of faculty development should reflect a balance between the use of mental and verbal processes to allow for confident and yet judicious interpretation of findings.
7. Future studies should expand this corpus over time to see if the development of metafunctional competence is related to academic level and international publications.

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