



RESEARCH ARTICLE

Linguistic Variations Across Pakistani Educational Blogs: A Multidimensional Analysis

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ABSTRACT

The study investigates the multidimensional analysis of the Pakistani English educational blogs, aiming to explore the linguistic variation among Pakistani and Non Native English use. Recognizing the absence of a dedicated corpus, the Pakistani Educational Blogs Corpus (PEBC) was compiled, comprising blog entries authored by Pakistani educators, researchers, and professionals in the educational sector. The research methodology employs Biber's (1988) multidimensional analysis framework, enhanced with modern computational tools to tag and analyze linguistic features, including part-of-speech tags. The study followed a systematic approach, beginning with the selection and categorization of relevant blog entries based on predefined criteria such as discipline, author's background, and publication platform. Subsequently, the tagged linguistic features will be subjected to frequency calculations. The analysis aims to uncover patterns and variations across different categories of blog entries, utilizing analysis of variance (ANOVA) tests to identify statistically significant differences between Pakistan and Native English educational blogs. The data analyzed revealed that the language used by both Pakistani and Native education bloggers is descriptive in nature. The Pakistani bloggers use an objective tone in their blogs while, on the other hand, Native bloggers use personal and subjective tone. Average word Length in blogs by the Native English bloggers is lower than that of Pakistani but almost equal token type in Pakistani and Native bloggers signals similar lexical diversity in their blogs. Likewise, the frequency of modifiers and connectors is slightly higher in the blogs by the Native bloggers than that of Pakistani and indicates intricate sentence structuring on their part. A comprehensive overview of the linguistic patterns in native educational blogs, highlighting differences in pronoun usage, verb forms, and sentence complexity compared to Pakistani educational blogs. This analysis offers valuable insights into the stylistic and structural tendencies that characterize native educational writing.

INTRODUCTION

Blogs, being digital platforms, provide special perspectives on the nexus of language, culture, and education. The goal of the current study is to investigate this dynamic environment from several angles. The emergence of digital platforms has had a profound impact on education systems around the globe, including in Pakistan. With an emphasis on their function in influencing policy, improving instructional practices, and forming educational discourse, this research aims to offer a thorough examination of Pakistani educational blogs in comparison to Native English educational blogs. Through an examination of linguistic variation on the basis of use of parts of speech, this study tries to show how these digital platforms contribute to unfold linguistic variation between Pakistani and Native English Education blogs.

English language used in Pakistan is known as a distinct dialect in the subcontinent, and understandable with different assortments of other Englishes like Bengali, Indian, Nigerian, Sri

Lankan, and so on (Siddiqui & Keerio, 2019). Pakistani English speakers who are not native speakers have distinct written and spoken registers that vary systematically at all linguistic levels. Since the latter half of the 20th century, Pakistani researchers have been trying to determine the distinctive linguistic quality of Pakistani English by comparing it with American and British English.

English-speaking aristocracy and English-language mass media have contributed to the development of Pakistani English (Khan, 2012). In the twentieth century, as modern technology and the Internet have advanced, new internet registers that require further study have emerged. Regardless of their socioeconomic level, gender, or color, the Internet has recently offered creative ways for students, businesses, bloggers, aspiring authors, and IT professionals to communicate in English (Shakir & Deuber, 2018).

Numerous newly developing online registers have been observed by researchers, including blogs, Facebook groups, comments, e-mail, text messages, instant messaging (IM), Facebook status updates, text messages, SMS, and Facebook groups. The greatest rapid growth in popularity of weblogs is coming from their use in asynchronous computer-mediated conversation (CMD). In addition to being text-based, blogs are an asynchronous discussion forum and a type of computer-mediated communication (CMC). The language is essential to any kind of CMC. Consequently, computer-mediated discourse analysis is necessary.

Studies of registers based on corpora emphasised co-occurring patterns, general register characteristics, and the variation of specific grammatical aspects among registers (Biber, 2008). The multidimensional approach was developed to compare spoken and written English registers and to provide a comprehensive representation of the coexisting linguistic properties of registers (Biber, 1988). Prior register-based research has focused on commonly written registers to preserve the uniqueness of Pakistani English and investigate linguistic diversity, such as academic prose (Abid et al., 2022; Ahmad et al., 2019a; 2023; Pervez et al., 2024), Pakistani press editorials (Ahmad et al., 2019b, 2020; Fatima et al., 2023), and legal documents (Asghar et al., 2018).

In order to observe the language and situational differences among Pakistani internet blogs in comparison to Native, the current article conducted an MD analysis of their sub-registers. Biber (2008) states that there are two general registers for speech and writing. There exist numerous designated registers, including textbooks, formal lectures, e-mail correspondence, chats, and scholarly prose. Registers serve important communicative roles and are distinguished both in linguistic and situational terms. According to Biber and Conrad (2001), the term "register" refers to a broad range of situational qualities and functions. Understanding the linguistic distinctions between registers is crucial. Ferguson (1983) brought up the notion that human language is universal in its register variation, in which language structure varies depending on the situation of use. In order to investigate systemic similarities and differences among various sub-registers, the current study has examined internet blogs and their subcategories.

According to Bilal et al. (2023), an understanding of the different "forms and dynamics of English across different global contexts" is crucial for successful language teaching as well as learning. An important measure to be taken in this regard is "to recognize and appreciate linguistic diversity within the English language" (p. 69). That is why, the examination of instructional blogs' content is a crucial aspect of this research. The level of the content on these blogs varies greatly; it might include everything from thoughtful essays and policy criticisms to introspective pieces and tales from the classroom. Global Partnership for Education blogs such as "Education in Pakistan" concentrate on governance and policy matters, including comprehensive evaluations of state-level school changes and their effects on academic results (GPE, 2023). Some blogs, like the ones run by the World Bank, emphasize the value of focused policies and greater public spending on education by showcasing real-world interventions and success stories (World Bank, 2023).

Such platforms are important, according to recent studies. For example, Farooq et al. (2023) show how teachers' digital literacy may improve educational blogs, making them better vehicles for policy advocacy and professional development. Similar to this, Khan and Mahmood (2023)

investigate how social media affects Pakistani educational reform and show how blogs may sway public opinion and influence legislative actions.

Blogs with educational content are essential for sharing information and learning materials. They give teachers a forum to exchange ideas, lesson plans, and effective teaching techniques. This role is especially crucial in Pakistan, where there may be restricted access to high-quality educational materials (Farooq et al., 2023). The importance of interactive material in raising student engagement and learning results is shown by recent research by Ali and Aslam (2023). According to their research, blogs that include interactive conversations and multimedia components outperform conventional text-based blogs in terms of user engagement.

The Multidimensional Analysis (MDA) Framework

Grieve et al. (2010) introduced the Multidimensional Analysis (MDA) framework, which serves as the foundation for the analytical technique used in this study. This methodology offers a thorough approach to investigating several language variance characteristics in educational blogs. The study intends to explore the complex levels of audience involvement, technology integration, policy effect, and content quality in the context of Pakistani educational blogs by utilizing this framework.

Initially, the MDA framework was created to analyse language variance among various genres and registers. By looking at several variables at once, Grieve et al. (2010) built it to capture the complexity of language usage and enable a more sophisticated comprehension of textual data. Since then, this method has been modified and used in a number of disciplines, demonstrating its adaptability and resilience, including sociolinguistics, discourse analysis, and educational research (Grieve et al., 2010; Biber & Conrad, 2009).

The MDA framework allows academics to systematically analyse the textual features and functional changes of blog material in the context of educational blogs. In order to provide a complete picture of how educational blogs operate as digital communication tools, this entails looking at characteristics including syntactic structures, lexical choices, thematic elements, and interactional features (Biber, 2014).

Problem Statement

Pakistani English educational blogs has been examined using the Multidimensional Analysis (MDA) paradigm in a number of registers. Studies have been conducted in a variety of fields, including academic writing (Azher & Mahmood, 2016), book blurbs (Qasim, 2016), print ads (Shakir, 2013), and press reports (Ahmed & Mahmood, 2015b). Studies that compare native English varieties and Pakistani English have also been carried out, providing insight into the unique characteristics and practical applications of English in Pakistan (Hussain, 2016; Ahmed & Mahmood, 2015a). There is, however, lack of research being done on the examination of educational blogs with the goal of determining the current efficient use of Pakistani English.

In the direction of determine the present functional usage of Pakistani English in educational blogs, no special study has been done. Educational blogs play a crucial role in Pakistani education, acting as vital tools for educators and students alike. These blogs play a significant role in the modern educational environment since they are widely used to accomplish learning and teaching objectives.

In Pakistan's educational system, educational blogs are essential tools for English language learners as well as teachers. The fact that these digital platforms are widely used to accomplish a range of teaching and learning objectives demonstrates their significance in the context of contemporary education. Educators in Pakistan are using educational blogs more often to support their lesson plans and instructional strategies. These blogs include a wealth of information that help improve instruction in the classroom, such as lesson ideas, instructional practices, and educational research. For example, Farooq et al. (2023) discovered that educational blogs enable educators to keep current on the newest advancements in education by giving them access to cutting-edge pedagogical approaches and creative teaching resources.

Research Objective

To analyze linguistic variations in selected corpora of Pakistani English educational blogs in comparison to that of Native English educational blogs based on Biber's (1988) and (2004) frameworks

Research Question

What are the linguistic variations in selected corpora of Pakistani English educational blogs in comparison to that of Native English educational blogs based on Biber's (1988) and (2004) frameworks?

Scope of the Study

The scope of this study focuses on analyzing a diverse collection of educational blogs sourced from the internet. The selection includes both Pakistani English blogs and native blogs, covering a range of perspectives within the educational sector. The content spans various types of blogs, including those associated with higher education institutions, universities, and private individuals who write about educational topics. This study aims to examine the content, themes, and insights presented across these different platforms to gain a comprehensive understanding of the discourse in the field of education.

2. LITERATURE REVIEW

As previously noted, numerous approaches have emerged alongside the basic 88 MDA model since the introduction of the MDA approach to register variation analysis. Some recent works on learner corpora continue to use the 88 MDA Version, often called as Old MDA (e.g., Nesi, 2008; Aguado-Jimenez et al., 2012; Ahmad & Mahmood, 2015a; Ahmad & Mahmood, 2015b; Abdulaziz et al., 2016; Mahmood & Hussain, 2016), which relies on its 67 characteristics, while (also referred to as the New MDA). For example, Van Rooy & Terblanche (2006) utilize Biber's 88 model of More dimensional investigation to analyze complex characteristics a student writing and thereby tag the data for the model's fundamental 67 attributes. Van Rooy (2008) then uses the 88 model of MDA on TLE and LOCNESS corpora to assess scholar writing in Black South African English aligned with the equivalent 67 attribute. Apart from analyzing the results on Biber's five dimensions, he evaluates them to see whether there is any indication of indigenization and systematicity in such writing.

However, utilizing the 67 core elements of the 88 model of MDA, Van Rooy & Terblanche view on derive five-components representation in this roots of work on student corpora. As a result, additional dimensions such as Modern Literacy, clearness, casual Style, Information Contextualization, and influential measurement are unique to student writing (Van Rooy & Terblanche 2009).

As part of the study approach, a review of studies highlighting linguistic aspects of learner writing was undertaken to assist select variables for a complete but relevant New MDA. Although the analytical and statistical methodologies utilized in these studies may differ significantly, this section has been limited to a description of the linguistic traits that have been uncovered (Ijaz et al., 2014) discussed numerous characteristics that might be considered linguistic traits specific to Pakistani student writing in their endeavor to highlight Pakistani scholar lettering faults the graduate rank. As a result, they must be considered while selecting variables for the current study. A portion of ICLE containing around 0.2 million words was examined for this investigation. Five of the discovered mistakes (or traits) are grammatical, including the usage of verbs, article, prepositions, subject-verb conformity, and double reversal.

On quantity of 1529 argumentative essays written by native English speakers, number of efficient and conditional techniques of essays (for example essay quality, on time, and grade point) were discussed and interpret using Multidimensional investigations (Crossley et al., 2012). 95 characteristics were considered for this purpose, which were then translated into four extent using Coh-Metrix. The learn is unique in that it focuses on finding co-occurrence patterns in linguistic features as they relate to L1 challenging article writing, as well as identifying tools in argumentative essays so that a better understanding of how writing situations influence the co-occurrence of linguistic features can be developed. Type count, word count, prepositional phrases, attributive

adjectives, total sentences, adverbs, be-main verb, existential there, that-verb complements, nominalizations, present tense verbs, number of paragraphs, and keyword type count, agentless passive verbs, predicative adjectives, time adverbials, stranded prepositions, gerunds, hyponymy value, modifiers per noun phrasing. On the basis of past research on argumentative essay writing, all 95 aspects were taken into account while short listing the linguistic factors for this study.

Nesi identified differences in complexity at the lexical and syntactic levels, which are then interpreted in terms of language development, in a diachronic study of Hungarian advanced EFL learner writing. The mean length of the production unit, sentence complexity ratio, dependent clauses, coordinate phrases, and nominal were among the syntactic indices used in this study's analysis. The study indicates, however, that these metrics are insufficient to track the growth of syntactic complexity in second language acquisition (SLA). As a result, it suggests that future researchers consider more genre-specific measurements, such as conditional clauses, prepositional phrases, relative clauses, infinitive clauses, and simple and complex post-modifiers (Nesi, 2008).

Another thorough study of English language learners emphasizes the role of verb-noun collocations in SLA (Laufer & Waldman, 2011). The research was based on a 300,000-word corpus of argumentative and descriptive essays from the LOCNESS database. Although the primary goal of this research is to locate noun-verb collocations by finding the most often occurring nouns and then analyzing them with concordance software, it also underlines the importance of the use of two grammatical categories: noun and verb.

Hinkel investigated the linguistic and rhetorical characteristics of SLA authors in one of her 1500 student essay studies to propose modifications in the teaching approach to academic writing at the university level. For this goal, 68 linguistic characteristics were used to compare the works of L2 and NS learners (Hinkel, 2002).

To construct continuity in their writing, L2 learners depend on simple conjunctions, exemplification markers, and demonstrative pronouns, according to the findings. However, due to a lack of space, all the characteristics may not be described here. They have, however, been considered in the research technique. Hinkel's research continues to compare elements of L2 learners' writing to those of L1 learners. In one of her research papers (Hinkel, 2003a), she compares the two writings using quantitative analysis of the adverbial markers they use in their writing, such as adverbials of time, place, and manner, amplifiers, emphatics, down toners, adverb clauses of cause, concession clauses, conditional clauses, purpose clauses, reduced adverb clauses, and other types of adverb clauses. Using a computer tagging tool to examine competency level variations in L2 learners' writings, several more noteworthy aspects have been revealed (Grant & Ginther, 2000). Essay length, lexical specificity (type/token ratio and word length), lexical features (conjuncts, hedges, amplifiers, emphatics, demonstratives, and down toners), grammatical structures (nouns, nominalizations, personal pronouns, verbs, modals, adjectives, adverbs, prepositions, and articles), and clause level features were all tagged for this study (overall subordination, complementation, relative clauses, adverbial subordination, and passives). In their research of L1 and L2 student writing, Hyland and Milton identify a number of items that reflect epistemic modality. While both L1 and L2 learners depend significantly on modal verbs and adverbs, the results reveal that L2 learners, such as those from Hong Kong, use syntactically simpler forms (Hyland and Milton, 1997).

Reynolds compared essays written by ESL and ENL students to investigate causality in the writing of middle-grade English language learners. The causality markers were divided into regularity markers (e.g., and, when, then, in) and power markers (e.g. because, so, therefore, thus, by, though, with). The findings show that ESL learners use these markers far more frequently than ENL learners, and that this difference does not change over time. It alludes to a common feature of ESL student writing: the heavy usage of causality indicators (Reynolds, 2002).

Cobussen presented a detailed list of syntactic traits of Pakistani English authors based on Baumgardner (1993) and Mahboob (2004) investigations, which deviates from BrE norms of writing (Cobussen, 2008). These include the use of progressive aspect in perfective sentences, the use of stative verbs in progressive aspect, the preference for perfective aspect over simple past, adjectives followed by a preposition and a participle clause instead of a to-infinitive clause and vice versa, nontransitive verb complementation by a noun phrase, nontransitive verb complementation by a

non-finite clause, di-transitive complementation, deletion of the object of di-transitive verb. Similarly, Rahman has offered a comparison analysis of elements of PE with Standard British English on syntactic and semantic grounds, as well as a complete examination of four different varieties of Pakistani English used in Pakistan, among other things. The parallels and contrasts, on the other hand, are based partially on personal observation and partly on data gathered from a variety of spoken and written sources, including publications by Pakistani authors, despite the fact that no statistical technique was used in the study (Rahman, 2015).

Talaat lists the usage of over-long sentences as one of the most prevalent syntactic aspects of PE on a comparable qualitative level. For some linguists, the existence of language qualities such as linguistic complexity indicates the quality of argumentative essay writing (Talaat, 2002). Taguchi et al., conducted one such research, which is based on Biber findings and analyses complexity at the phrasal and clausal levels. The sentence level complexity was calculated by counting the frequency of linguistic elements such subordinating conjunctions, verb complements, noun complements, adjective complements, that-relative clause, and wh-relative clause. The frequency of occurrence of linguistic features such as pre-qualifiers, pre-quantifiers, post-determiners, demonstrative determiners, singular definite and indefinite articles, singular or plural determiners, double conjunctions, attributive adjectives, and post-noun-modifying prepositional phrase has been used to measure phrase level complexity (Taguchi et al., 2013).

Similar studies have been conducted to determine L2 learners' writing skill by assessing the text's syntactic complexity and using it as an indicator of a fully completed text (Ortega, 2003). The number of complex clauses indicated by adjective + noun, possessives, and prepositional phrases, clause length, and sentence length, according to Lu are the complexity metrics that appropriately identify learner ability.

Russell contrasts academic writing of university Advanced English Language learners to that of English as a First Language learners by examining the frequency of usage of 13 linguistic elements in 30 student research essays from each group. Public verbs, private verbs, be-main verb, necessity modal, modal would, perfect aspect, passive, adjectival clause, amplifier, adj predicate, coordinator, it-cleft, and type token ratio are some of these features. The study also compares these linguistic characteristics to the findings of earlier studies on L1 and L2 student papers and finds that they are consistent (Russell, 2014). It focuses on Hinkle's (2001, 2002, 2003a, 2003b, 2004, 2009) research on a variety of linguistic and rhetorical features such as adverbials, tense, aspect, passive voice, modal verbs, cohesion, and so on. As seen in the picture below, he summarizes these characteristics in a thorough table along with references from Hinkle's research as shown in Figure 2.2.

Examples of Linguistic Features and Findings of Prior Research Regarding Frequency of Features in Student Writing.

Feature	Examples	Findings of Prior Research
Public verbs	agree, mention, present	Higher frequency in ELL writing; associated with conversation (Hinkel, 2003a)
Private verbs	accept, consider, find	Higher frequency in ELL writing; associated with conversation (Hinkel, 2003a)
Amplifier adverbs	always, even (+adj), very, well	Higher frequency in ELL writing (Hinkel, 2003b); heightened feeling associated with conversation (Biber, 1988); ELLs overstate the importance of an assertion (Lorentz, 1998)
Emphatics (adverbs and adjectives)	complete, completely, indeed, such a (+noun)	Higher frequency in ELL writing (Hinkel, 2003b); heightened feeling associated with conversation (Biber, 1988); ELLs overstate the importance of an assertion (Lorentz, 1998)
Be as a main verb	<i>the wife was pregnant</i>	Higher frequency in ELL writing; associated with conversation (Hinkel, 2003a)
Predicative adjectives	<i>the wife was pregnant</i>	Higher frequency in ELL writing; associated with conversation (Hinkel, 2003a)
Necessity modals	must, have to, should, need to, ought	Higher frequency in writing of East Asian ELL students than in English L1 student writing (Hinkel, 2009); same found in Swedish ELL students Aijmer (2002); attributed to differences in cultural values and a more direct style of persuasion.
Modal <i>would</i>	<i>they would stand up</i>	ELL students underused it; need it for depersonalized or objective writing (Hinkel, 2004)
Perfect aspect	<i>frogs have been found</i>	ELL students underused it; need it for depersonalized or objective writing (Hinkel, 2004)
Passive voice	<i>children are affected</i>	ELL students underused it; need it for depersonalized or objective writing (Hinkel, 2004)
Reduced adjective clauses	<i>The authors listed in the citation were students</i>	Higher frequency in L1 writing (Hinkel, 2002)
it-clefts	<i>It is the senior women who keeps track of them</i>	Higher frequency in L1 writing; a more advanced syntactic structure (Hinkel, 2003a)
Type/token ratio	# of unique words in first 400 words of text	ELL writing has lower measure of lexical diversity and specificity than L1 writing due to less developed word knowledge (Kormos, 2011; Crossley & McNamara, 2008)

Figure 2.2 Important linguistic features of student writing as mentioned in preceding studies

3. RESEARCH METHODOLOGY

The multidimensional analysis of Pakistani educational blogs is conducted using a research technique that is explained in this section. The method involves gathering a corpus of blog posts, establishing selection criteria, and using a range of analytical tools to investigate linguistic characteristics and thematic content.

3.2 Pakistani Educational Blogs Corpus (PEBC)

Since there is no pre-existing corpus of the educational blogs, the Pakistani Educational Blogs Corpus (PEBC) will be created especially for this study. Strict standards will be set in order to guarantee the quality and applicability of the chosen blog postings.

3.2.1 Criteria for Blog Selection

When creating the PEBC, two primary factors were considered:

1. **Authorship:** Pakistani educators, researchers, or other professionals working in the field of education must write the blog posts.
2. **Publication Venue:** The blogs have to be posted on websites that are either headquartered in Pakistan or have a sizable readership among educators in Pakistan.

These criteria will ensure that the selected blogs are representative of the perspectives and discourses prevalent in the Pakistani educational landscape.

3.2.2 Description of the Corpus

The PEBC is a collection of blog posts published by people with a range of professional experiences and educational backgrounds, covering a number of subjects in education. The corpus is a useful tool for linguistic and thematic research as it attempts to cover a wide range of Pakistani educational discourse.

The blogs were categorized based on the following:

- **Discipline:** The educational field or subject matter discussed in the blog (e.g., science, humanities, social sciences).
- **Author's Background:** The educational and professional background of the blog author (e.g., teachers, researchers, policy-makers).
- **Publication Platform:** The online platform where the blog is published (e.g., personal blogs, educational websites, academic forums).

3.2.3 Factor Analysis

In this study, co-occurring sets of linguistic traits will be identified through the use of factor analysis, a statistical technique. A multivariate method for creating collections of several linguistic variables is factor analysis. The list of criteria is determined by looking for patterns in the texts' similar linguistic properties. A specific dimension name is given to a specific collection of factors once groups of factors have been identified, taking into consideration the common function of co-occurring linguistic traits. Every group of elements has both good and bad aspects. Negative denotes complementary distribution rather than being an evaluative phrase.

In other words, a text will have fewer negative qualities if it contains many good ones, and vice versa (Biber & Conrad, 2009, p. 227). Different studies (e.g., Ahmad et al., 2019a, 2019b; 2020; 2023) explored linguistic features through corpus assisted methods of analysis. Similarly, several studies (e.g., Abid, Manzoor & Siddique, 2022; Fatima et al., 2023; Pervez et al., 2024) extensively investigated linguistic features through the old multidimensional analysis. However, only the new multidimensional analysis of this corpus has undergone factor analysis; factor analysis is not necessary for the previous multidimensional analysis of this corpus because a collection of co-occurring characteristics with specified dimensions from the 1988 MD analysis of Biber are already accessible. For the factor solution, more than 150 linguistic characteristics have been chosen initially from Biber's Tagger. These elements are included in both the most recent and previous versions of Biber's Tagger.

3.3 Data Collection and Corpus Compilation

The data collection process involved identifying and downloading relevant blog entries, followed by converting them into a standardized format suitable for linguistic analysis. The steps involved are detailed below:

1. **Identifying Relevant Blogs:** Blogs were identified through online searches, recommendations from educational professionals, and references in academic publications.
2. **Downloading Blog Entries:** The selected blog entries were downloaded and converted into plain text files to ensure consistency in formatting and ease of analysis.
3. **Editing and Cleaning Data:** Personal information, headers, footers, and any non-relevant content (e.g., advertisements, unrelated comments) were manually removed from each blog entry.
4. **Categorizing Blog Entries:** The cleaned blog entries were categorized based on the predefined criteria (discipline, author's background, publication platform).

3.4 Analytical Framework

The multidimensional analysis framework, as established by Biber (1988) and further refined for this study, was employed to analyse the linguistic features of the blog entries. This framework involves several key steps:

1. **Tagging Linguistic Features:** The blog entries were tagged for various linguistic features using computational tools. These features will include part-of-speech tags, syntactic structures, and lexical items.
2. **Calculating Frequencies:** The frequencies of the tagged linguistic features were calculated to identify patterns and variations across different categories of blog entries.
3. **Factor Analysis:** A factor analysis was conducted to identify sets of co-occurring linguistic features, which has been interpreted as dimensions of variation.
4. **ANOVA Testing:** Analysis of variance (ANOVA) tests was conducted to determine the statistical significance of differences among categories of blog entries.

3.5 Research Procedure

The detailed procedure for compiling and analysing the PEBC is outlined below:

1. **Topic Selection:** The research topic was selected based on a review of existing literature on Pakistani educational blogs and identified gaps in the field.
2. **Model Composition:** A model for the analysis was composed, categorizing blog entries by discipline, author's background, and publication platform.
3. **Journal and Blog Identification:** Relevant blogs and journals were identified and downloaded.
4. **Editing and Conversion:** The downloaded blogs were converted to text files and edited to remove non-relevant content.
5. **Tagging and Analysis:** The edited blog entries were tagged for linguistic features, and the frequencies of these features were calculated and analysed using factor analysis.
6. **Statistical Analysis:** ANOVA was performed to identify significant differences among categories.

3.6 Data Analysis

Two different forms of multidimensional analysis were used in this research: a new multidimensional analysis based on its own factor solution and an old multidimensional analysis of academic writing based on Biber's 1988 factor solution. The textual dimensions were specified by Biber (1988) and he later confirmed the validity of these dimensions by independent and confirmatory research of distinct genres across many corpora using previously defined dimensions. This study aims to determine the characteristics of Pakistani educational blogs by contrasting its findings with those of Biber's 1988 MD research on academic writing.

Therefore, it is believed that this research's comparison with older multidimensional analysis has support the assertion made in earlier studies that academic English in Pakistan has a distinct existence. On the other hand, a new multidimensional analysis based on fresh elements of the present corpus was carried out in order to discover new textual aspects.

The process will involve the following steps; first, the data was tagged for linguistic features of Pakistani educational blogs; second, the linguistic features were counted; third, a factor analysis will be performed to reduce these features into sets of factors, finally, the ANOVA test will be used to investigate differences between categories of Pakistani educational blogs on old and new MD analysis. The information was forwarded to Northern Arizona University in the United States for thorough tagging and Biber Tagger analysis of both existing and new MDs.

3.6.1 Tagging of Linguistic features in the Pakistani Educational Blogs Corpus (PEBC)

Data tagging is the initial stage in the analysis process. The Pakistani Educational Blogs Corpus (PEBC) were tagged in this study using Biber's tagger (1988). A computer tool called Biber's tagger classifies the words in the corpus according to their parts of speech and applies grammatical and semantic categories to each word. Biber's tagger offers more information than other taggers, including voice, aspect, verb tense, semantic categories, lexico-grammatical relationships, and posture traits.

Both the Old MD (Multidimensional) analysis and the New MD analysis were performed for this investigation. Biber's 1988 MD analysis was utilized by the Old MD analysis to extract linguistic characteristics pertinent to the textual dimensions. The selection of linguistic characteristics for the New MD study was guided by earlier studies on academic writing in MD, where the corpus was grammatically annotated using Biber's tagger.

In Jesse Egbert's study, linguistic features from Biber's 1988 multidimensional analysis and the additional language characteristics from Biber's most recent investigations were tagged. Egbert first chose 83 characteristics, but the final analysis comprised 60 features to annotate the PEBC after deleting those with a mean score less than 0.5. This annotation will employ the linguistic aspects pertinent to the output of Biber's Tag count (see Biber et al., 1999 for specific linguistic features). Biber's updated list of 60 traits is displayed in Table 3.1. The purpose of adapting this list is to tag the PEBC.

Table 3.1 Linguistic Features in Academic Writing Adapted from Biber's Multidimensional Analysis (1988)

Private Verb (e.g, believe, feel, think)
'That' deletion (e.g; I think[that] he did it)
Present tense verb (uninflected present, imperative and third person)
Pro-verb 'do'
Demonstrative pronoun (that, this, those, these)
Adverb/ Qualifier-Emphatic (e.g, just, really, so)
First person pronoun (e.g, we, our)
Pronoun it/its
Verb 'Be' (Uninflected present tense, verb and auxiliary)

Subordinating Conjunction- Causative (e.g, because)
Discourse particles (sentence initial, well, now)
Nominal pronoun (e.g, someone, everything)
Adverbial-Hedge (e.g, almost, may be)
Adverb/ Qualifier, Amplifier (e.g, absolutely, entirely)
Wh-question
Modals of possibility (can, may, could, might)
Coordinating conjunction-clausal connector
Wh-clause (e.g, he believed what I told him)
Stranded Preposition(appearing at sentence end)
Noun (excluding nominalization and gerund)
Preposition
Attributive adjective (e.g, national interest, annual return)
Past tense verbs
Third person pronoun (except 'it ')
Verb-perfect aspect
Public verb (e.g, assert, complain)
Wh-pronoun- relative clause-object position (the person who he likes)
Wh-relative clause-subject position (e.g, the participants who like to join...)
Wh-relative clause-object position with prepositional fronting ('pied piping') way Co-ordinating conjunction-phrasal connector
Nominalization (e.g, organization, development)
Adverb-Time(e.g, instantly, soon)
Adverb-place (e.g, above, beside)
Adverb other(excluding adverb/Qualifier, Hedge, Emphatic, Time, place,Amplifier)
Infinitive Verb
Modals of prediction(will, would.)
Suasive Verb(e.g, ask, command)
Subordinating Conjunction- conditional (if, unless)
Modal of necessity (Ought, should, must)
Adverb within auxiliary(splitting aux-verb) (e.g, the product is specifically meant)
Adverbial-conjuncts(however, therefore, thus)
Agentless passive verb (e.g, however, therefore, thus)
Agentless passive verb (e.g, the scheme was introduced)
Passive verb+ by (e.g, the plan was introduced by principal)
Passive post nominal modifier (e.g, the message conveyed by)
Subordinating conjunction-Other (e.g, as, excepts, until)
Present Tense Verbs (Uninflected present, imperative and third person)

2 nd person Pronoun
1 st Person Pronoun
Verb 'Be'
Noun (excluding nominalization and Gerund)
Preposition
Verb Perfect Aspect
Predictive adjectives
Passives all
That-complement clause controlled by stance verb
To-complement clause controlled by stance verb
To-complement clause controlled by stance adjective
Process nouns (isolation et.)
Other abstract nouns (e.g, idea)
Activity Verb (e.g, give, take)
Mental verb (e.g, believe, enjoy, know)
Seem
Contractions
Split infinitives
NOT neg.
P-AND
O_AND
FINAL PREP.

The tagging process involved several critical steps to ensure the accuracy and relevance of the linguistic features annotated in the corpus. These steps included:

1. **Automatic Tagging:** The blog entries were tagged automatically using Biber's tagger, which identified and categorized the linguistic features according to the predefined categories.
2. **Interactive Tag Editing:** Following the automatic tagging, the tagged data went through an interactive editing to ensure high reliability and accuracy. This step involved manually reviewing and correcting any inconsistencies or errors in the tagging process.
3. **Normalization of Frequencies:** The frequencies of the tagged linguistic features were normalized to account for variations in text length and ensure comparability across different blog entries. This normalization process was done which helps in accurately capturing the patterns and variations of linguistic features within the corpus.
4. **Statistical Analysis:** The normalized data were subjected to statistical analysis to identify co-occurring linguistic features and their underlying communicative functions. This analysis involved using factor analysis to uncover dimensions of variation within the corpus.
5. **Interpretation of Dimensions:** The identified dimensions was interpreted in functional terms, based on the co-occurrence patterns of linguistic features. This interpretation provided insights into the communicative purposes and styles prevalent in the Pakistani educational blogs.
6. **Comparison across Categories:** The dimension scores were calculated for each blog entry, allowing for comparisons across different categories of blogs. Analysis of variance (ANOVA) tests was conducted to determine the statistical significance of differences among the categories, providing a deeper understanding of the linguistic and functional diversity within the corpus.

By utilizing both the Old and New MD analytic frameworks, a thorough analysis of the linguistic characteristics of Pakistani educational blogs will be conducted, leading to a more sophisticated comprehension of their function in educational discourse. A complete examination of the multidimensional profiles of these blogs will be made possible by the meticulous tagging and analysis process, which is aided by Biber's tagger and later statistical approaches. This will emphasize the influence of these blogs on Pakistani educational practices and policies. The next section elaborates the pilot study conducted to validate the steps to be taken in the main study.

4. RESULTS AND DATA ANALYSIS

4.1 Multidimensional Analysis (1988) across Pakistani and Native Educational Blogs

Table 4.1 Linguistic Distribution across Pakistani Educational Blogs

Linguistic Features in Pakistani Educational Blogs	Tags	Mean
Word Length	AWL	5.14
Type-Token Ratio	TTR	235
Amplifiers	AMP	0.18
Interdependent Clause Coordination	ANDC	0.44
Be as main verb	[BEMA]	1.5
By-passives	[BYPA]	0.16
Causative adverbial subordinators	CAUS	0.09
Concessive adverbial subordinators	CONC	0.02
Conditional adverbial subordinators	COND	0.16
Conjuncts	CONJ	0.3
Contractions	[CONT]	0.19
Demonstratives	DEMO	0.81
Demonstrative pronouns	DEMP	0.32
Discourse particles	DPAR	0.03
Downtoners	DWNT	0.23
Emphatics	EMPH	0.53
Existential there	EX	0.21
First person pronouns	FPP1	1.34
Gerunds	GER	0.68
Hedges	HDG	0.01
Indefinite pronouns	INPR	0.02
Attributive adjectives	JJ	7.52
Necessity modals	NEMD	0.22
Total other nouns	NN	27
Nominalizations	NOMZ	5.35
Other adverbial subordinators	OSUB	0.22
Agentless passives	[PASS]	1.06
Past participial clauses	[PASTP]	0.04
Perfect aspect	[PEAS]	0.7
Phrasal coordination	PHC	1.49
Total prepositional phrases	PIN	11.7
Pied-piping relative clauses	[PIRE]	0.06
Pronoun it	PIT	0.77
Place adverbials	PLACE	0.33
Possibility modals	POMD	0.47
Predicative adjectives	PRED	0.62
Present participial clauses	[PRESP]	0.19
Private verbs	[PRIV]	1.04
Predictive modals	PRMD	0.48
Pro-verb do	[PROD]	0.06
Public verbs	[PUBV]	0.65

Total adverbs	RB	2.56
Sentence relatives	[SERE]	0.1
Seem appear	[SMP]	0.05
Split auxiliaries	[SPAU]	0.41
Split infinitives	[SPIN]	0.03
Second person pronouns	SPP2	0.22
Stranded preposition	[STPR]	0.05
Suasive verbs	[SUAV]	0.34
Synthetic negation	SYNE	0.15
That adjective complements	THAC	0.04
Subordinator that deletion	[THATD]	0.12
That verb complements	THVC	0.41
Time adverbials	TIME	0.32
Infinitives	TO	1.73
That relative clauses on object position	TOBJ	0.08
Third person pronouns	TPP3	1.78
That relative clauses on subject position	TSUB	0.16
Past tense	VBD	2.33
Present tense	VPRT	4.7
WH-clauses	[WHCL]	0.03
WH relative clauses on object position	[WHOBJ]	0.02
Direct WH-questions	[WHQU]	0.03
WH relative clauses on subject position	[WHSUB]	0.23
Past participial WHIZ deletion relatives	[WZPAST]	0.18
Present participial WHIZ deletion relatives	[WZPRES]	0.31
Analytic negation	XX0	0.61

This above-mentioned table provides a detailed analysis of various linguistic features present in Pakistani educational blogs, each identified by specific tags and their corresponding mean values, which represent the average occurrence per blog. The data reveals a high frequency of nouns and adjectives, with "total other nouns" (NN) averaging 27 and "attributive adjectives" (JJ) averaging 7.52 per blog, indicating a rich use of descriptive language. Pronouns are also notably present, with first person pronouns (FPP1) averaging 1.34 and third person pronouns (TPP3) slightly higher at 1.78, suggesting a balanced use of personal and external references.

In terms of verbs and verb phrases, public verbs (PUBV) and private verbs (PRIV) have mean values of 0.65 and 1.04 respectively, while infinitives (TO) and various participial clauses further contribute to the verbal complexity observed in the blogs. Modifiers and connectors are prominently featured as well, with adverbs (RB) averaging 2.56 and prepositional phrases (PIN) standing out with a high mean of 11.7 per blog, highlighting the intricate structuring of sentences.

Negation and modality features exhibit lower mean values, with analytic negation (XX0) at 0.61 and various modals related to necessity, possibility, and predictiveness also showing less frequent usage. This suggests that while negation and modal expressions are present, they are not as dominant as other grammatical elements. Overall, the table offers a comprehensive overview of the linguistic patterns prevalent in Pakistani educational blogs, emphasizing the distribution and average usage of different grammatical components and providing insights into the stylistic and structural tendencies of these educational writings.

Table 4.2 Linguistic Distribution across Native Educational Blogs

Linguistic Features in Native Educational Blogs	Tags	Mean
Word Length	AWL	5.06
Type-Token Ratio	TTR	233
Amplifiers	AMP	0.12
Interdependent Clause Coordination	ANDC	0.91
Be as main verb	[BEMA]	1.61

By-passives	[BYPA]	0.07
Causative adverbial subordinators	CAUS	0.09
Concessive adverbial subordinators	CONC	0.04
Conditional adverbial subordinators	COND	0.23
Conjuncts	CONJ	0.27
Contractions	[CONT]	0.75
Demonstratives	DEMO	0.83
Demonstrative pronouns	DEMP	0.4
Discourse particles	DPAR	0.02
Downtoners	DWNT	0.16
Emphatics	EMPH	0.72
Existential there	EX	0.17
First person pronouns	FPP1	2.31
Gerunds	GER	1
Hedges	HDG	0.01
Indefinite pronouns	INPR	0.01
Attributive adjectives	JJ	7.32
Necessity modals	NEMD	0.17
Total other nouns	NN	23.98
Nominalizations	NOMZ	4.03
Other adverbial subordinators	OSUB	0.21
Agentless passives	[PASS]	0.61
Past participial clauses	[PASTP]	0.04
Perfect aspect	[PEAS]	0.47
Phrasal coordination	PHC	1.26
Total prepositional phrases	PIN	10.15
Pied-piping relative clauses	[PIRE]	0.05
Pronoun it	PIT	0.84
Place adverbials	PLACE	0.33
Possibility modals	POMD	0.88
Predicative adjectives	PRED	0.78
Present participial clauses	[PRESP]	0.27
Private verbs	[PRIV]	1.73
Predictive modals	PRMD	0.45
Pro-verb do	[PROD]	0.12
Public verbs	[PUBV]	0.53
Total adverbs	RB	3.28
Sentence relatives	[SERE]	0.09
Seem appear	[SMP]	0.04
Split auxiliaries	[SPAU]	0.36
Split infinitives	[SPIN]	0.05
Second person pronouns	SPP2	0.96
Stranded preposition	[STPR]	0.08
Suasive verbs	[SUAV]	0.46
Synthetic negation	SYNE	0.09
That adjective complements	THAC	0.04
Subordinator that deletion	[THATD]	0.22
That verb complements	THVC	0.29
Time adverbials	TIME	0.28
Infinitives	TO	2.5
That relative clauses on object position	TOBJ	0.15
Third person pronouns	TPP3	1.87
That relative clauses on subject position	TSUB	0.35
Past tense	VBD	2.07

Present tense	VPRT	5.52
WH-clauses	[WHCL]	0.11
WH relative clauses on object position	[WHOBJ]	0.01
Direct WH-questions	[WHQU]	0.08
WH relative clauses on subject position	[WHSUB]	0.15
Past participial WHIZ deletion relatives	[WZPAST]	0.14
Present participial WHIZ deletion relatives	[WZPRES]	0.28
	XX0	0.67

The above-mentioned table offers an in-depth examination of various linguistic features present in native educational blogs, each categorized by specific tags and their corresponding mean values, which indicate the average occurrence per blog. The analysis highlights a slightly lower average word length (AWL) of 5.06 compared to Pakistani educational blogs, and a comparable type-token ratio (TTR) of 233, suggesting a similar lexical diversity.

Nouns and adjectives remain prominent, with "total other nouns" (NN) averaging 23.98 and "attributive adjectives" (JJ) at 7.32 per blog, reflecting a substantial use of descriptive language. Pronouns show a higher prevalence in native blogs, particularly first-person pronouns (FPP1) with a mean of 2.31 and third person pronouns (TPP3) at 1.87, indicating a more personal or subjective tone compared to their Pakistani counterparts.

Verb usage exhibits notable differences, with private verbs (PRIV) averaging 1.73 and public verbs (PUBV) at 0.53, alongside a higher mean for infinitives (TO) at 2.5 and present tense verbs (VPRT) at 5.52. This suggests a greater reliance on certain verb forms and tenses in native educational content. Additionally, the presence of various participial clauses and phrasal coordination (PHC) with a mean of 1.26 further underscores the complexity of verb structures in these blogs.

Modifiers and connectors are also significant, with adverbs (RB) averaging 3.28 and prepositional phrases (PIN) at 10.15 per blog, slightly higher than in Pakistani blogs, indicating intricate sentence constructions. Negation and modality features show mixed results; analytic negation (XX0) is slightly higher at 0.67, while modals related to possibility (POMD) and necessity (NEMD) exhibit moderate usage.

Overall, Table 42 provides a comprehensive overview of the linguistic patterns in native educational blogs, highlighting differences in pronoun usage, verb forms, and sentence complexity compared to Pakistani educational blogs. This analysis offers valuable insights into the stylistic and structural tendencies that characterize native educational writing.

5. CONCLUSION

The selected corpora in the current study has revealed the average use of grammatical components in both Pakistan and Native English educational blogs. The frequency of noun in Pakistani educational blogs is (NN) 27 per blog while the average of adjectives (JJ) used by them is 7.52 per blog which unfolds that their language has descriptive quality. So for as the frequency of pronoun is concerned, the use of third person pronoun (TTP3) 1.78 per blog shows that Pakistani education bloggers use an objective tone in their blogs. Moreover, the frequency of the modifiers and connectors per blog signals the intricate sentence structuring by Pakistani bloggers. a comprehensive overview of the linguistic patterns in native educational blogs, highlighting differences in pronoun usage, verb forms, and sentence complexity compared to Pakistani educational blogs. This analysis offers valuable insights into the stylistic and structural tendencies that characterize native educational writing.

On the other hand, so for as the Native English education blogs are concerned, it has been observed that there is a lower average word length (AWL) 5.06 as compared to that of Pakistani bloggers but both have similar lexical diversity as they have almost equal token type i.e. 233 in Native and 235 in Pakistani educational blogs. Likewise, Native English educational blogs have higher noun and adjective frequency i.e. NN is 23.28 and that of JJ is 7.32 per blog. It reflects the descriptive use of language by the Native bloggers. The type of pronoun used by the Natives indicate a personal and subjective tone than that of Pakistani bloggers. Additionally, the use of various principal clauses and PHC underscores the complexity of verb structure in Natives' blogs. Furthermore, the frequency of modifiers and connectors is higher in Natives' blogs than that of Pakistani. The higher frequency

indicates the intricate sentence construction. A comprehensive overview of the linguistic patterns in native educational blogs, highlighting differences in pronoun usage, verb forms, and sentence complexity compared to Pakistani educational blogs. This analysis offers valuable insights into the stylistic and structural tendencies that characterize native educational writing.

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