EXPLORING NEW DISCOURSES OF PAKISTANI ACADEMIC WRITING: A MULTIDIEMNSIONAL ANALYSIS

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ABSTRACT:: *The present research explores new dimensions of Pakistani academic writing register in the non native context of Pakistani English. Previous quantitative studies on Pakistani English have identified its distinct characteristics on the basis of the occurrence of individual linguistic items and have played a pioneering role in the recognition of Pakistani English as an independent variety. Biber (1988) developed multidimensional (MD) approach for register variation studies based on the co-occurrence of lexio-grammatical features.He disregarded the reliability of individual linguistic features for being subjective and misleading in exploring variation among registers and emphasized the importance of co-occurrence of linguistic features to distinguish among registers. The present research as one of the pioneer studies on register variation aims to explore Pakistani academic writing register through multidimensional analysis. A special purpose corpus of 8.385000 million words based upon 235 M.Phil and PhD theses as representing of Pakistani academic writing has been constructed for the present research. Factor analysis identified sets of co-occurring features on five dimensions. These dimensions are labeled as Interactive Expression vs. Informational Academic Discourse, 'Contextualized Description vs. Detached Reference, Informal vs. Formal Academic Discourse, Narrative Discourse vs. Other Concerns, and Personal/ Evaluative Stance vs. Technical Description.*

Key words: Pakistani English, academic writing, register analysis, multidimensional analysis, new dimensions

INTRODUCTION

With the concept of language variation, it has become utmost important to analyze linguistic patterns across register. A register is the variety of language specific to the occasion of use and is persistent in human language. Academic writing has been considered "a very general *register*, characterized as written language that has been carefully produced and edited, addressed to a large number of readers who are separated in time and space from the author, and with the primary communicative purpose of presenting information about some topic" [1]. Academic writing in the present context may be defined as a type of writing produced in response to academic assignment for the attainment of degree or it may be defined
as a discourse of community existing within a specific discipline.

Academic writing like other registers in Pakistan is an area that still seeks the attention of the researchers and linguists.

As for the learners, academic writing is the most important register on which their academic career depends. This target register needs to be fully described in terms of linguistic characteristics to develop appropriate teaching materials and methods. So far, no register based study has been done on co-
occurring linguistic features of Pakistani academic writing as a register. The most important condition which is indispensible for any register study and in its absence any register study will be unscientific and invalid is the idea of co-occurrence of linguistic features. Co-occurrence of linguistic features refers to the clusters of associated features having a tendency to occur together in a particular register. Although, the concept of sets of co-occurring linguistic features had been recognized before 1988 [2,3], it was Biber who practically operationalized the concept of sets of co-occurring features in his 1988 multidimensional analysis. The multidimensional analysis is based on the identification of the sets of co-occurring linguistic features through statistical factor analysis and then interpretation of these sets of co-occurring features in terms of their shared communicative functions called dimensions. This approach focuses the point that "the relative distribution of common linguistic features, considered individually cannot reliably distinguish among registers when analyses are based on the co-occurrence and alternation patterns for groups of linguistic features, important differences across registers are revealed" [4]

Multidimensional analysis uses the methodological tools of corpus linguistics and synthesizes both quantitative and qualitative functional techniques. Quantitative techniques are not sufficient in themselves for MD analyses of register variation. Rather, like all register analyses, qualitative analysis is required to interpret the functional bases underlying each set of co-occurring linguistic features. The dimensions of variation have both linguistic and functional content. Quantitative analysis is concerned with the linguistic content of a dimension comprising a group of linguistic features to explain the quantitative linguistic patterns in functional terms; whereas, qualitative analysis is required for the interpretation of functional bases underlying each group of linguistic features.

The clusters of co-occurring linguistic features which are derived through statistical factor analysis can have both positive and negative loading. The positive and negative loading indicate that complimentary distribution of linguistic features that means the presence of one cluster marks the absence of other. However, on the basis of the shared communicative functions of the linguistic features on both positive and negative polarity, dimensions are formed and labeled.

There are two different versions of Multidimensional analysis, both perform different functions and attain different objectives. The first version (old MD) stands for Biber's 1988 factor analysis in which he explored five different dimensions across 23 different spoken and written registers. New MD is based upon the generation of new dimensions on

the bases of a different corpus of texts, as stated by Biber[5], 'given that each of these studies is based on a different corpus of texts, representing a different discourse domain, it is reasonable to expect that they would each identify a unique set of dimensions'. Some of the new dimensions based upon the new MD analysis, contributed by Biber himself include: Biber [6] Dimension 3: procedural vs. content focused discourse and Dimension 4: academic stance; Biber [7] stance focused vs. content focused discourse.

Many other studies have employed MD methodology to formulate new dimensions for a particular register. In studies of this type researchers compile a large corpus of texts and use factor analysis to create new dimensions based on the co-occurring features. Individual texts are then plotted on these dimensions. Three important studies that have used this approach are Reppen's [8] study of register variation in the spoken and written language of school age children and adults, Friginal's [9] research on call center English in the Philippines, and Gray's [10] study of register variation among research articles from six disciplines. These studies are vastly different from each other, but each has used the MD approach to tailor fit the dimensions to the discourse registers they were investigating. In other words, in each of these studies, generating dimensions based on the data the researchers collected gave more insight into the variations of the registers being investigated than would have been possible by using Biber's original dimensions to describe their data.

Hardy and Romer [11] explore four new dimensions in students' writing captured by the Michigan Corpus of Upper-level Student Papers (MICUSP, 2009) based on four broad disciplines of Humanities, Social Sciences, Biological Sciences and physical sciences. The four dimensions are: (1) Involved, Academic Narrative *versus* Descriptive, Informational Discourse; (*2*) Expression of Opinions and Mental Processes; (*3*) Situation-Dependent, Non-Procedural Evaluation *versus* Procedural Discourse; and (*4*) Production of Possibility Statement and Argumentation. Dimension 1 includes verbs, personal pronouns, past tense verbs on the positive side, while nouns and adjectives on the negative side. Dimension 2 has only positive side and includes stance features and verb categories of likelihood and complementation.

Gray [12] conducted MD analysis of research articles taken from six disciplines to identify disciplinary variation along with other multiple parameters. On the bases of multidimensional analysis of academic writing she identified 4 different dimensions: Dimension 1, labeled Academic Involvement and Elaboration versus Information Density (composed of twenty-six positive features and eight negative features), Dimension 2: contextualised narration *versus* procedural discourse, Dimension 3: human *versus* non-human focus, Dimension 4: 'academese'. With these very dimensions, Gray concludes that although linguistic variation across disciplines is one of the important features of academic writing, there are multiple other parameters like 'nature of evidence', availability of data, quantitative and qualitative paradigms in shaping academic writing.

Egbert [13] described linguistic variation in academic writing across two disciplines, namely: biology and history. Based on the corpus of published academic writing, he explores academic writing from two perspectives, academic writing as a register and variation within academic writing specially with reference to published academic writing. This study identifies five dimensions labeled as ""Affective synthesis versus specialized information density", "Definition and evaluation of new concepts", "Author-centered stance", "colloquial narrative", and "abstract observation and description". Dimension 1, for example contains adverbials, emphatics and amplifiers on the positive end whereas it contains nouns on the negative end. Both these features suggest "related functional considerations.'

Getkham [14] investigated co-occurring patterns of linguistic features of research articles of applied linguistics across sections by employing multidimensional analysis. The corpus consisted of 60 research articles taken from five applied linguistics journals, 12 articles representing each journal. Findings indicated that there were six co-occurring patterns which were named as follows: (1) Established Knowledge/Expression of Ownership, (2) Expression of Purposes, (3) Evaluative Stance, (4) Expression of Generality, (5) Framing Claims, and (6) Conceptual Complexity.

This review of the previous studies reveals that most of the work done on academic writing is related to research articles (on science and medicine) and text books. Dissertation writing that is very much important for university students has been disturbingly neglected.To help university students develop the language skills in various disciplines the present research gives a comprehensive description of linguistic features of M.Phil and PhD theses.

Previous Studies on Pakistani Academic Writing

Pakistani academic writing is the least explored area so far. The research work which represents Pakistani academic writing as a small part of general purpose corpora of Pakistani Written English (PWE) comes from Mehmoodians [15]. In PWE, Pakistani academic writing is represented by three sub-registers of text books, research articles and thesis and forms a part of general purpose corpus. No distinct features of Pakistani academic writing have been studied in this research.

A recent research has been conducted by Asghar [16] on the features of meta discourse and contrastive rhetoric in Pakistani academic writing. The research is based on a small corpus consisted of 11 written texts, each comprising of 450 words at average. The research is an attempt to develop awareness about meta-discourse features in students' writings.

Resting upon the multidimensional analysis proposed and developed by Biber (1988), the present study aims to analyze linguistic variation across Pakistani academic writing through a corpus based multidimensional methodology. While taking 235 research dissertations of M.phil and PhD students as sample, the present research mainly focuses on identifying new textual dimensions of Pakistani academic writing. Unlike previous studies on Pakistani English which are mainly based on the individual occurrence of linguistic

items, this study focuses on the co-occurrence of linguistic features and augment our understanding about the linguistic features of academic writing and the their functional dimensions. The present research is distinguished from earlier corpus based researches on Pakistani academic English in many ways. So far, no systematic study based on specialized corpus of Pakistani academic writing has been conducted. Whereas, the present research introduces a large size specialized corpus comprising of 8.385000 million words based on the dissertations of M.phil and PhD students from different universities all over Pakistan.

Secondly, previous corpus based studies did not employ multidimensional approach, but relied on individual linguistic features for the interpretation of salient features of Pakistani English. The present study explores Pakistani academic writing on the basis of multidimensional analysis which is the most suitable approach for studying linguistic variation across registers.

The present research views Pakistani academic writing as a register in the non native context of Pakistani English. Register based studies are essentially required for further strengthening the distinct identity of Pakistani English. So far only two register based studies [17,18] on the language of Pakistani print advertisements and press reportage respectively have been conducted through Multidimensional (MD) Analysis of Biber [19]. Pakistani English entails to be studied at the level of register for the further exploration of its unique features and to strengthen its distinct linguistic identity. There is a need to study other registers of Pakistani English to strengthen its identity as a distinct variety. However, no study has been carried out on Pakistani academic written English through multidimensional approach. Therefore, the present study aims at the investigation of linguistic variation across Pakistani academic writing in terms of the new textual dimensions established in the present analysis.

MATERIALS AND METHODS
Collection of Data and Corpus Compilation
Collection of data was the very first step in the process of corpus compilation. All universities of Pakistan were selected as the population of the study. However 14 different universities were approached personally or through HEC research repository for the collection of theses in three selected disciplines. 235 theses in total were finally collected from different universities. The universities include GCU Lahore International Islamic University, Islamabad, Lahore College for Women University, NUML, Quaid-i-Azam University, Shah Abdul Latif University of Khairpur, University of Agriculture, University of Karachi, University of Peshawar and University of Punjab. These 235 theses represented multiple subjects within three selected disciplines or 'disciplinary groups' in the words of Gardner, S (2007). Humanities and Social Sciences were represented by 80 theses each, whereas Sciences were represented by 75 due to less availability of theses in the selected subjects and as per convenient sampling. The corpus finally was compiled of 235 text files on the bases of sub-categories. Below is given the description of the corpus in terms of words.

Description of Corpus in Terms of words

| Sr. #	Discipline	No of words
1	Humanities	3,852,622
2	Social Sciences	2,663,503
3	Sciences	1,868,875
4	**Total**	**8,385,000**

Data Analysis
The data analysis in the present research has gone through four basic steps which include: tagging of data for linguistic features, attaining counts of linguistic features, turning raw frequencies into normalized scores, calculation of dimensions scores and factor analysis. All these steps are discussed below in detail.

Tagging of the Corpus
The corpus of Pakistani academic writing was tagged by employing Biber's tagger. The data was tagged by Jesse Egbert where he tagged all linguistic features tagged in 88 MD analysis along with many later tags included by Biber. Initially Jesse Egbert tagged 189 linguistic features from the corpus; however, only 108 linguistic features being possibly important markers of variation were selected for factor analysis as the rest of the features were excluded due to their minimum mean scores of frequency count. The linguistic features were selected on the basis of their frequency, tendency to occur in previous studies on academic writing and the researcher's intuition. Detailed explanation of these features is available in Biber (1988) and Longman Grammar of Spoken and Written English [20].

Computing Raw Counts of Linguistic Features and

Non Graphical Solutions to Scree Test
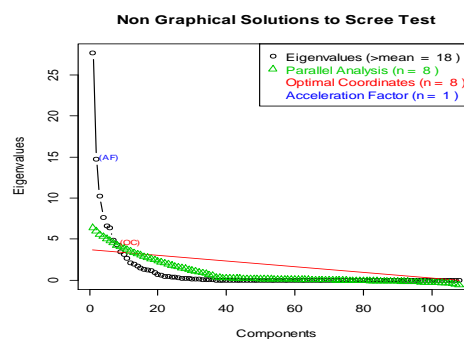
converting into Normalized Frequencies
Biber's tag count program was used for the raw counts of the frequencies of different linguistic features and normalized frequencies. The raw frequencies of linguistic features were obtained from all texts. This normalization was highly essential for comparison of frequency counts across texts due to variation in the length of texts. After the frequencies are counted, they further undergo into the process of standardization.

Calculating Dimension Scores
The dimension score of each text of Pakistani academic writing was calculated by subtracting the standardized scores of negative features from the sum of standardized scores of positive features.

Factor Analysis

Sr.No	Interactive Expression vs. Informational Discourse	Loading

1	Stance verbs	0.93
2	verbs expressing desire	0.88
3	mental verbs	0.88
4	the stange all	0.88
5	private verbs	0.88
6	communication verbs in other context	0.87
7	Wh all	0.85
8	Vb-comm	0.85
9	all verbs	0.81
10	that deletion	0.81
11	factive verbs in other contexts	0.80
12	Wh questions	0.79
13	That complement clauses controlled by verbs	0.78
14	1st person pronouns	0.76
15	public verbs	0.71
16	Wh-clauses b	0.64
17	Wh fact verb	0.62
18	Pro-verb do b	0.60
19	Modals of possibility	0.53
20	All pronouns	0.52
21	Discourse particle	0.50
22	Modals of prediction	0.46
23	Subordinating conjunction conditional	0.48
24	All modals	0.54
25	Vb-be	0.42
26	To verb stance all	0.67
27	To stance all	0.60
28	Prepositions	-0.63
29	Word length	-0.56
30	Nn human	-0.53
31	Jj attr	-0.48
32	Nn place	-0.47
33	Nn common	-0.39

The next step involved in the current research was factor *analysis. Factor analysis is a multivariate statistical technique* used to categorize multifarious interrelationships among items and group items that are part of integrated concepts. Factor analysis presents 'grouping of linguistic features that co-occur with high frequency' [21]. It is mostly used for reduction of data by involving lengthy computations. In the present research Factor analysis identified sets of co-occurring features on five dimensions. These features included both positive and negative loading, showing complementary distribution on each dimension. All the linguistic features with 0.35 and above factor loading were finally considered for the interpretations of results. Overall, the pattern matrix includes 97 linguistic features.

In order to settle on the proper and correct number of factors to be integrated in the analysis, Field (2000) and Rietveld & Van Hout (1993) advocate keeping factors with eigenvalues larger than 1. Then, plot the eigenvalues (Scree plot) and keep the factors that occur before the breaking point. [22,23]The Scree plot shows the maximum amount of shared variance among the variables for each factor. The eigenvalues are indices of the amount of variance accounted for by each factor. Eigenvalues also indicate the percentage of shared variance that is accounted for by each factor. The

Scree plot given below shows that the first factor accounts for the greatest proportion of variance. Though there are 11 eigenvalues above 1, the plot shows a sharp break between the fourth and fifth factors and a lesser break between the fifth and sixth factors. The scree plot gradually flattens from the ninth factor. Therefore, there were two choices: a larger or smaller number of factors. Biber stated that "solutions with fewer factors resulted in a collapsing of linguistic features in to single factors making the interpretation of those factors more difficult. Solutions with additional factors accounted for little additional variance, and those factors were represented by only a few features" [24]. Thus, 5 factors were finally included for their functional interpretation to show up the distinctive dimensions of Pakistani academic writing.

DISCUSSION
This section gives an overview of the dimensions explored
Dimension 1: **Interactive Expression vs. Informational Discourse**
Dimension 1 is labeled as Interactive Expression vs. Informational Academic Discourse. This is the most powerful dimension as it comprises of 27 positive and 6 negative linguistic features. All of these features need to be interpreted from functional point of view. It is noteworthy that some of the features (e.g. private verbs, that deletion, wh clauses, verb-be, preposition, word length, attributive adjectives) are similar to the Dimension 1 of Biber 1988 study. However, the new features on D1 need additional functional explanation in relation to the non-native context of Pakistani academic writing.

Among the most distinguishing features with highest positive weight on Dimension 1, stance verbs(0.93) carry the highest weight and co-occur with private verbs (0.88) along with verbs expressing desire (0.88),mental verbs (0.88), the stange all (0.88), communication verbs in other context (0.87), and Wh all (0.85), and all verbs(0.81).

This dimension is highly characterized by different categories of verbs along with complement clauses (0.85), discourse particles (0.50) and first person pronoun (0.76) on positive pole which characterize Pakistani academic writing as interactive and communicative.

The features on positive pole serve multiple functions related to interactive style. Verbs denote action, process, states and serve to generate relationship between participants. Verbs tend to be the focal point in a clause and tend to convey a verbal style unlike nouns which communicate nominal style. Stance verbs (e.g. think, believe, feel, hope) which express attitude and standpoint towards something, are on the highest position on the positive pole. They refer to the writer's attitude and feeling and valuation of academic topics. The frequent co-occurrence of stance verbs along with private and desire verbs seem to be very important as they are co-occurring with communication verbs and all Wh clauses. Wh clauses have rhetorical purposes and are used to involve the readers in the discussion. These features refer to the text as highly interactive added with personal concern and thoughtfulness. The presence of stance verbs in combination with private and mental verbs relates to the writer's opinion

in Pakistani academic writing and makes it highly slanted and interpreted. On the basis of the features on positive pole, this dimension is labeled as interactive expression.

Further investigation reveals that modals of possibility and prediction are co-occurring with 1st person pronouns. 'First-person pronouns in particular are used to bring the author, the reader and often humankind in general into the discourse, creating a sense of interaction and relating points and ideas to the readers as members of humankind'. [25]

On negative pole D1 is characterized by human and place nouns with attributive adjectives, prepositions and word length. Features with negative loading include preposition (-0.63), human nouns (-0.53), attributive adjectives (-0.48), nouns of place (-0.47) and word length (-0.56) nouns are carriers of information and referential denotations. The high frequency of nouns along with adjectives and prepositions indicates that information is dense in Pakistani academic writing. Prepositions are generally used as a gadget to incorporate high amount of information in academic writing. The words typed in bold in the following example indicate density of information in Pakistani academic discourse.

Example 1

'**Media** is supposed **to be the fundamental constituent in** a **society** as it bestows a **platform for discussion of national, international, political and social concerns**. Generally, **newspapers** had **editorial bent towards a particular political direction** or another. **In time of elections**, **political affiliations of media**, particularly newspapers are **more explicit**. Even though **particular newspapers** show partiality and campaign **for their preferred party**, **the status of newspapers** is still admired **among the society.' (Text 1. 1. H)**

Biber (1986a) finds that prepositions tend to co-occur with nominalizations in academic prose. Word length also mark bulk of information and signify precise and exact lexical choices, resulting in concise and exact presentation of information.[26] This dimension is similar to Biber's 1988 dimension 1 in many features like verbs, complement clauses, Wh questions, that deletion, pronouns, with the exception of contractions, present tense verbs, causative subordination on positive and type token ratio and agent less passives on negative poles. Most of the features with highest loading are similar. This dimension also reflects many of the features with the exception of narrative features in Hardy and Romer (2013) dimension labeled as Involved, Academic Narrative and Descriptive, Informational Discourse.[26]Moreover, this dimension has many of the features similar to Gray's (2013) D1 labeled as "academic involvement and elaboration *versus* information density" particularly on negative side of the polarity.[28] Similar features include stance based structures, modals, pronouns on positive pole and nouns, prepositions, word length on negative pole of the dimension.

Together, both positive and negative features lead to the interpretation of dimension 1of Pakistani academic writing as (+) Interactive Expression Vs (-) Informational Academic Discourse.

Dimension 2: Contextualized Description vs. Detached Reference

r.No	Dimension 2	Loading
	all conjunctions	0.79
	subordinate conjunction causative	0.77
	factive adverbs	0.77
	advl_stance_all	0.76
	adverbial conjuncts	0.72
	subordinating conjunction other	0.72
	Emphatic	0.72
	Adverbs	0.66
	coord_conj	0.53
10	nominal pronoun	0.51
11	det+stance noun	0.50
12	nn_quant	0.49
13	modals of necessity	0.47
14	demonstrative pronouns	0.47
15	epistematic adjectives in other context	0.40
16	adverb-downtoner	0.36
17	time adverbials	0.35
18	nn_all	-0.89
19	nn_proper	-0.78
20	passive_postnom	-0.50

Dimension 2 of Pakistani academic writing is labeled as 'Contextualized Description vs. Detached Reference. This dimension is also very important in that it is marked by 17 positive and 3 negative linguistic features on factor loading. On the positive pole, this dimension is predominated by the co-occurrence of conjunctions and adverbs. It is observed that the co-occurrences of the features on this dimension are quite different from Biber's 1988 study. In Biber, conjunctions are co-occurring with passives and adverbs on Dimension 5. The different features require further functional interpretation with reference to the non-native context of Pakistani academic writing.

Among the positive features, conjunctions (0.79) have highest loading on this dimension and co-occur with subordinate conjunction causative (0.77), factive adverbs (0.77), adverbials (0.66), emphatics (0.72) and nominal and demonstrative pronouns on positive polarity. Conjunctions include both co-ordinating and subordinating conjunctions. Co-ordinating conjunctions (and, or) create links between elements of same syntactic structures, while subordinating conjunctions introduce dependent adverbial clauses beginning with after, because, as etc. Adverbs express information about time, place and manners and relate information with the context. 'Situation-dependent writing is characterized by adverbials' [20,21]).

The presence of conjunctions along with causative subordinate conjunctions, factive adverbs, stance adverbials, and emphatics refers to the contextual element in Pakistani academic writing. Stance adverbials express attitude as likelihood of an idea; whereas, emphatics are also adverbs/qualifiers like just, really, so etc. Emphatics are characteristics of informal colloquial discourse, marking the involvement with the topic. Biber noted that the hedges and emphatics co-occur frequently in conversational discourse. Adverbials appear to be an important tool for creating

informational relations in a text and characterize situation dependent discourse. [20]

Adverbs and conjunctions generally describe circumstances relating to actions, processes and states denoted by verbs. Their co-occurrence refers to the circumstantial and contextual stance of Pakistani academic writing. The following example highlights the contextual stance of Pakistani academic writing.

Example 2

'A census study was **not possible** for the researcher **as** it was **practically impossible** to visit **each and every** part of the country to find the readers of the news papers and to examine the influence of the language of newspapers on their language. **This** selection was made **out of the different** provinces of the country: the main cities **such as** Islamabad, Lahore. Peshawar, Karachi, Queta, and faisalabad were visited. **Eventually**, a small **but carefully** chosen sample of the whole population was selected with the help of survey. **As the first** step **500 people** were selected for the test. In the **second** phase the written test was given to the most suitable selected sample of **473 participants'**. (text 16.5, Con, H)

Adverbs are further co-occurring with nominal pronouns (0.51), stance nouns (0.50), quantity nouns (0.49), demonstrative pronouns (0.47) and epistematic adjectives. Demonstrative pronouns are exophoric referents which refer to an entity outside the text or a previous referent added in the text. Demonstrative pronouns serve as pointer to the neighbouring text (usually preceding text) or to the speech situation.

The use of demonstrative pronouns along with stance and quantity nouns refers to the descriptive style of Pakistani academic writing. The co-occurrence of nouns and adjectives with adverbs refers to the contextualized description of information.

Example 3

'**Identification**, **communication and regulation of emotions** (anger); **expression specifically** found to be **fully** mediated **between** mindfulness and marital **quality**. **Association between** global marital **quality** and communicating **subscales** of TAS-20 (Toronto Alexithymia Scale by Bagby, Taylor, & Parker, 1994) were **significantly** negative. Global marital **quality** was **significantly negatively** correlated with **acts of aggression**. Zeidner & Kaluda (2008) examined the **role** of EI in romantic **love among newly**wed **couples** by administering **both ability measure** of maximal **performance** and **self report measure** of typical **performance** (the Schutte Self-Report Inventory).' (text 89.2,SS)

On negative pole, nouns are co-occurring with passive post-nominal. Features with negative loading include nn_all (-0.89), proper noun (-0.78), passive_post-nom (-0.50), common nouns (-0.39). Proper nouns along with all types of nouns are occurring with greatest loading. In academic writing where agents are not important, passive voice is valuable. Proper nouns serve as referents to entities, whereas passive constructions mark detached and impersonal attitude. Passives along with nouns are the indicators of detached descriptive style in Pakistani academic written discourse. In passive constructions, the agent is demoted that results in abstract and impersonal presentation of information.

'The extensive use of passives also gives a sense of objective detachment in expository prose' [21]. The below given example expose the detached style of Pakistani academic writing.

Example 4

'In most of these **studies women empowerment was considered** as the **outcome of interest**. In addition to that in some **studies**, **combination** of both quantitative and qualitative **techniques (triangulation) was applied**. However, few of these **studies were focused** on household **wellbeing**. Furthermore, some of **studies were conducted** by considering **women**'s **empowerment** as multi-dimensional **concept**. In this regard **varieties** of **dimensions were used** to measure **women's empowerment'**. (Text 113.2.SS)

The example reveals density of passives and nouns which make Pakistani academic writing detached and impersonal. On account of its co-occurring features, dimension 2 of Pakistani academic writing is labeled as Contextualized Description vs. Detached Reference.

Dimension 3: Informal vs. Formal Academic Discourse

Sr.No	Dimension 3	Loading
1	verb present progressive	0.77
2	place adverbials	0.74
3	third person pronoun except it,	0.72
4	preposition final,	0.70
5	concrete nouns	0.69
6	phrasal verbs activity transitive	0.65
7	phrasal verbs activity intransitive	0.64
8	Contractions	0.61
9	Hedge	0.57
10	exist verbs	0.51
11	action verbs	0.46
12	process nouns	-0.88
13	passive short	-0.71
14	all passive	-0.70
15	nn_nominal,	-0.54
16	Amplifier	-0.53
17	th_verb,	-0.52
18	new stance nouns	-0.51
19	split_auxiliary	-0.46
20	stance nouns +preposition	-0.44
21	all wh relative clauses	-0.43
22	stance nouns in other context	-0.40
23	th_verb_att,	-0.38

Dimension 3 like all other dimensions of Pakistani academic writing has two opposite and mutually exclusive sets of features and is characterized by both positive and negative features on polarity. Surprisingly this factor has more features on negative polarity as compared to positive side. The grammatical features on Dimension 3 are also found to

be different in some ways from the previous studies based on MD analysis. This recommends the need for the functional interpretation of these features that takes into consideration the distinguishing features of Pakistani academic writing. On the positive pole, present progressive verbs (0.77) with the largest weight frequently co-occur with place adverbials (0.74) third person pronouns (0.72) and preposition final (0.70). Their frequent co-occurrence indicates ongoing continuous state of actions taking at specific places.

Other features with positive loading include contractions (0.61), adverbial hedges (0.57), phrasal verbs activity intransitive (0.64) phrasal verbs activity transitive (0.65), concrete nouns (0.69), action verbs (0.46), exist verbs(0.51).The presence of progressive verbs, prepositions at final places, adverbial hedges and contractions marks a Pakistani academic written discourse as informal and casual. Hedges are informal, less specific markers of probability or uncertainty.

Example 5

'It is not **astonishing** that all **kind of** big and small companies and organization **using** social media to overseas and **answer** the contradictory or **giving** bad feedback about their brand product. In accordance to this particular **way of thinking** social media and **brandinggo** hand to hand.' (text.66. H)

Features on negative pole are amplifier (-0.53), th_verb (-0.52), split_auxiliary (-0.46), nn_nominal (-0.54) passive short (-0.71), all passive (-0.70), all wh relative clauses(-0.43) stance nouns +preposition p (-0.44), stance nouns in other context (-0.40), new stance nouns (-0.51), th_verb_all (-0.38), process nouns (-0.88). Process nouns serve to present high degree of information. Split auxiliary co-occur with passives, prepositions, nominalizations (**B**iber 1988; p. 244). The negative pole is characterized by all features which make academic writing more formal and extended. Process nouns refer to nominalization, making nouns from other classes of words. Nominalization with passives is a useful technique to present great deal of information in more concise and formal way. Amplifiers are further used to add beautification in the academic discourse and mark formal and extended discourse to elaborate information. Passives are found to be frequently co-occurring with nouns and amplifiers.

Example: 6

'Knowing the <u>**culturally tabooed**</u> **connotation of** the item, **participants** *were instructed* that the **statements of** BDI are assessing <u>**the adverse**</u> **impacts of** disease-related **difficulties** including **negative behavior** of others upon their **thinking, feeling, behavior** and **natural** desires. **Participants** *were further instructed* that their <u>**honest and uninhibited responses**</u> will make the **study** useful **for all the individuals'.** (Text 126. 3, SS)

The example reveals the abundance of passives, nouns and amplifiers which mark Pakistani academic writing as extended and formal

Dimension 4: Narrative Discourse vs. Other Concerns

Sr.No	Dimension 4	Loading
1	past verbs	0.80
2	perfect verbs	0.76
3	coordinate conjunction phrases	0.62
4	wh_relative_subject,	0.57
5	verb aspectual	0.53
6	verb occurrence,	0.49
7	nn_premod	-0.83
8	present verb	-0.77
9	pro_2	-0.70
10	all indefinite articles	-0.65
11	have verb	-0.52

Dimension 4 offers both positive and negative factor loading on two poles. The positive pole is characterized by the co-occurrence of past verbs (0.80) with perfect verbs (0.76) and coordinating conjunction phrases (0.62). This dimension has some of the features similar to Biber's dimension 2 of the 1988 study which characterize Pakistani academic writing as having narrative aspect as well. The features which are different need further functional interpretation in the specific context of Pakistani academic writing. Past verbs are generally used for narration purposes to describe past events. Immediate to past verbs are perfect verbs, which are further co-occuring with other occurrence and aspectual verbs along with Wh words functioning as subject. Wh' pronoun at subject position in relative clauses have factor loading of 0.57. Occurrence and aspectual verbs along with Wh relatives as subjects and conjunction phrases can be grouped to narrative function of past verbs to report about activities and events commonly held in past. The following example from the corpus mark Pakistani academic writing as narrative.

Example: 7

'Karachi Stock Exchange (KSE) **was established** in 1949 **and** now it **became** the leading stock market of Pakistan. Pakistan **suffered** from domestic and international issues like devaluation of money, political instability from 1994-95 to 1997-98 **and** these problems **caused** to decline stock index. In 1999, government **took steps** to improve the condition of economy **whichwere included** reduction in interest rate, lower inflation **and allowed** the foreigners to send remittance in Pakistan without any restriction of the State Bank. Due to the best performance of Karachi Stock Exchange, it **was awarded** as a "Best Performing Stock Market of the World for the year 2002". KSE **showed** record performance during 2005-2008 **which was** best performance of Pakistan stock exchange.' (text 160 SS)

Present tense refers to present time. Present tense as opposed to past verbs shows feelings of immediacy and personal involvement and is also used for habitual and repeated activities or behaviour. Second person pronouns indicate the focus on the reader. Both past and perfect verbs refer to an event or state in the past. The primary difference in meaning between the two is that the present perfect evokes a situation that continues to exist up to the present time, while the simple past tense describes an event that took place at a particular time in the past. Past perfect verbs also tend to occur in dependent clauses. In this case, the simple past tense

in the main clause provides the perspective for interpreting the time reference. The event in the dependent clause was completed by the time of the event in the main clause: (Biber et al, 2002, p. 161)

The features on positive pole include past verbs (0.80), perfect verbs (0.76), wh_relative_subject (0.57), coordinate conjuction phrases (0.62), and verb occurrence (0.49), verb aspectual (0.53). Past tense functions as a marker of narrative discourse where perfect verbs are also associated with narrative and descriptive text and with certain kind of academic discourse. Past and perfect verbs co-occur frequently as indicators of narration.

On negative side nn_premod (-0.83), present verbs (-0.77) , pro_2 (-0.70), have verb (-0.52), all indefinite articles (-0.65), co-occur on this dimension. The features on this pole show other concerns of Pakistani academic writing, other than narrative discourse.

Example: 8

National **Research Council** (NRC, 2006) **claims** that interest in **science education is a worldwide phenomenon** and **it is** shared by industrialized as well as developing countries. It **is** further indicated that **an** important and crucial factor **that can** contribute to the overall scientific progress **is** effective **science education**. It **means** that the dream of socio-scientific progress **can** not be realized without effective **science education**. **Science education** and science **are** basic and fundamental part of our curriculum. (Text 142.1, SS)

Dimension 5: Personal/ Evaluative Stance vs. Technical Description

Sr. No	Dimension 5	Loading
	attitudinal adjectives in other context,	0.71
	attitudinal verbs in other context	0.71
	all adjectives	0.70
	jj-att-pred	0.65
	Predicative adjectives	0.64
	suasive verbs	0.46
	stance nouns in other context	0.42
	technical nouns,	-0.74
	all definite aricles	-0.46
10	group nouns	-0.40

Dimension 5 is predominated by adjectives on positive pole. Although attitudinal verbs have also the same weight as attitudinal adjectives, but adjective are repeatedly co-occurring on this dimension. These co-occurring features are different from Biber's 1988 study and require interpretation in Pakistani academic context. Adjectives are linked to nouns as their major function is to modify nouns. Adjectives describe quality of both animate and inanimate nouns and add into the informational density. Biber, Conrad and Leech (2002, P. 187), while comparing the linguistic features of academic prose, conversation and news, demonstrate that there is dense use of adjectives and nouns in academic prose. Predicative adjectives follow verbs and express stance and

more specific evaluation. Attitudinal verbs may have same meanings as attitudinal adjectives. Attitudinal features also have strong weight on this dimension. Attitudinal adjectives express the stance of the writer. Words like important, interesting, of value etc are common in academic prose and exhibit evaluative bent of mind of the writer. The features include attitudinal adjectives in other context (0.71), attitudinal verbs in other context (0.71), all adjectives (0.70), predictive adjective (0.64), suasive verbs (0.46), stance nouns in other context (0.42).

The frequent co-occurrence of attitudinal adjectives and verbs reveals subjective opinion and evaluation based stance of the writer. Attributive adjectives along with predicative adjectives and stance nouns further strengthen the view of Pakistani academic writing as having evaluative stance as well.

The following example taken from the corpus exhibits the evaluative stance of Pakistani academic writing.

Example 9

'Pakistani intelligence services were kept in dark about the **impending operation** on **Pakistani territory".** **American military analysts believe** that "Either **Pakistan's intelligence service is terribly incompetent, fatally compromised, or both,** raising questions about its suitability as a partner" (**Congressional Research Service**, May 5th 2011). "**Pakistani military and defense establishment sare facing the blame** that they **are involved** in protecting Bin Laden or **gross incompetence** in **intelligence gathering**," by **American analysts.'** (Text 7, H)

The negative side of the polarity on this dimension is marked by technical nouns (-0.74), all definite articles (-0.46), group nouns (-0.40) showing an impersonal attitude towards the informational discourse. Technical nouns are used to describe related topics and concepts. Definite articles are used for specific reference. Technical nouns along with definite articles refer to the description of specific related concepts. These features with negative scoring characterize Pakistani academic writing with technical descriptive style. The below given example exhibits technical stance of Pakistani academic writing. the features on both side lead towards the interpretation of the dimension as Evaluative Stance vs. Technical Description.

Example: 10

 'All **the** successful cases, using opportunities of **global commerce** for **the reduction** of **poverty** have involved **the route of literacy and basic education** on a wide basis Already in the mid-nineteenth century the task was seen with remarkable clarity in Japan. The Fundamental **Code of Education**, issued in 1872 (Meiji Restoration in 1868), expressed **the public commitment** ro make sure that there must be "no **community** with an illiterate **family or a family** with an illiterate person". By 1910 **Japan** was almost fully literate, at least for the young and by 1913, though very much poorer than **Britain or America**, **Japan** was publishing more books than **Britain** and more than twice as many as **the United States.'**

CONCLUSION

On the basis of new MD analysis of a representative corpus of Pakistani academic writing, the present research has identified five dimensions. The first dimension is labeled as Interactive Expression vs. Informational Academic Discourse and represents Pakistani academic writing consisting of verbs on positive pole while nouns, preposition and adjectives on negative side. Dimension 2 of Pakistani academic writing is labeled as 'Contextualized Description vs. Detached Reference. Dimension 2 is characterized by conjunctions, pronouns, emphatics and adverbs on positive side and passive and proper nouns on negative side. Dimension 3 is named as Informal vs. Formal Academic Discourse due to density of feature of informal discourse on positive side and features like nominalization and amplifiers on negative side which characterize Pakistani academic writing as highly formal and extended. Dimension 4 is labeled as Narrative Discourse vs. Other Concerns due to high presence of past and present linguistic features on both poles respectively. Dimension 5 is named as Personal/ Evaluative Stance vs. Technical Description and is predominated by adjectives on positive polarity and technical nouns on negative side.

The study is limited to the dissertations of M.phil and PhD graduates. Further studies may be conducted on other genres of Pakistani academic writing.

However, the results of the present research may prove to be a useful source to researchers working in the area of academic writing as a register. The results of the present study may be taken as norms of Pakistani academic writing and other genres of academic writing like text books, research articles, essays may be explored through these established dimensions. In future diachronic researches might be conducted to evaluate language change in Pakistani academic writing register by collecting the corpus of Pakistani academic writing of previous decades and comparing its results with the present study. Moreover, the findings of the present study provides bases for viewing the results in perspective of world Englishes and the results may be compared in native and non-native context.

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