Engagement in Pakistani Academic Research Discourse: A Cross-disciplinary Analysis of PhD Theses in Natural and Social Sciences

Moazzam Ali Malik[*], Muhammad Islam[**] and Muhammad Shahbaz[***]

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Abstract

This study investigates the rhetorical choices of the engagement features in Pakistani Academic Research Discourse (PARD) of natural and social sciences. Using the 'Interaction Model' (Hyland, 2005), it explores how the writers of different disciplinary cultures employ engagement features to define and maintain their knowledge territories in their respective fields. Hyland's (2005) typology of engagement features includes; *reader pronouns, directives, questions, shared knowledge* and *personal asides* as linguistic elements of engagement. The corpus data for this study comprised 120 PhD theses produced by Pakistani scholars in the domains of natural and social sciences. This data was accessed from Pakistan Research Repository (www.prr.hec.gov.pk); and after cleaning, it was transferred into the text-file format. Corpus analysis tool AntConc 3.4.4w was used for generating Word-lists, Keywords, and Concordances to explore engagement features from PARD. The findings reveal that, in PhD theses of the social sciences, authors make more use of *reader's pronouns, directives, questions,* and *appeal to shared knowledge* than in the natural sciences. The study concludes by emphasizing the need for more research to understand how, discursively, knowledge communities of natural and social sciences are established. The findings of the study may be used to develop English for Specific Purposes (ESP) courses and resources aimed at improving the academic writing skills of new researchers.

Keywords: Engagement, academic research, social sciences

[*] Assistant Professor, Department of English, University of Gujrat. Email: moazzam.ali@uog.edu.pk
[**]Assistant Professor, Department of English Language Teaching & Linguistics, IER, University of the Punjab, Lahore. Email: mislam.ier@pu.edu.pk
[***]Department of English, GC Women University, Sialkot. Email: m.shahbaz@gcwus.edu.pk

Introduction

Hyland (2008) considers academic discourse as a form of social interaction in academic settings which involves the established practices of language use. Academic discourse is characterized by its academic settings in which it is produced to create knowledge (see, Mu, Zhang, Ehrich, and Hong, 2015). According to Fairclough (2013) and Gee (2004) "discourse" is a term not limited to the use of language for communication, rather it is a means to the social construction of subjective positions and identities. Similarly, an academic discourse not only propagates academic ideas and arguments, but it also establishes a scholar's identity and situates him/her in a discipline-specific discourse community.

Academic research discourses are empirical endeavors to seek objective reality; and, therefore, they are aptly referred to as the discourses of "truth" (Lemke, 1995, p.178). Nevertheless, 'objectivity' is a hazy term used to explain the discursive orientation of the academic discourses (Megill, 1994). Both in the natural and social sciences, it is usually acknowledged that the research discourse is an impersonal discourse in which researchers objectively present their arguments. Comparatively, in natural sciences, research discourses rely more on the objective approaches for verifying the observable facts in the real-world (Panday, 2014).On the other hand, the social sciences depend more on the rhetorical features and linguistic strategies to discursively construct their disciplinary knowledge (Fuller, 1991). Discourses in both these domains attempt to present convincingly an interpretation of the phenomenon; however, the arguments proposed by an author can always be challenged by the other counter-discourses of knowledge production. Therefore, the credibility of the academic discourse is discursively improved by establishing a writer-reader association in texts and authors make certain rhetorical choices to maintain their persona in the academic discourse.

In recent times, research scholars have started preferring a more reader-engaging style of writing and the 'author evacuated' academic discourses have been replaced by more interactive discourses in academia (Hyland, 2010, p. 116). According to Hyland (2010), the academic discourses are not just the means of knowledge transference, rather they are the 'sites' of negotiating author's relationship with the readers. To produce such interpersonal meaning in academic discourses, one needs to develop an understanding of the rhetorical features that establish writer-reader relationship. The objectives of the study are:

- To comparatively explore how writer-reader relationship is negotiated in the academic discourses produced in the natural and the social sciences.
- To investigate the differential use of engagement features in PhD theses produced in the natural and the social sciences.

Literature Review

In history, different dimensions of writer-reader relationship have been explored by different scholars (e.g. Hunston & Thompson, 2000; Ochs, 1989; Chafe & Nochols, 1986; Martin, 2000; Conrad & Biber, 2000). The focus of these scholars has remained on the use of rhetorical features of evaluation, appraisal, affect, hedging, evidentially, and stance. Recently, Hyland (2005) has proposed a comprehensive model of interaction that explicates how authors mark their identity, opinion, and interpersonal judgments by making certain rhetorical choices in their academic discourses.

Hyland (2005)'s Interaction Model

Hyland's (2005) Interaction Model takes into its account nine different rhetorical resources that assign stance to the author and engage the reader in the academic text. Hence, stance and engagement are the key categories of Interaction Model; the framework can be presented as follows:
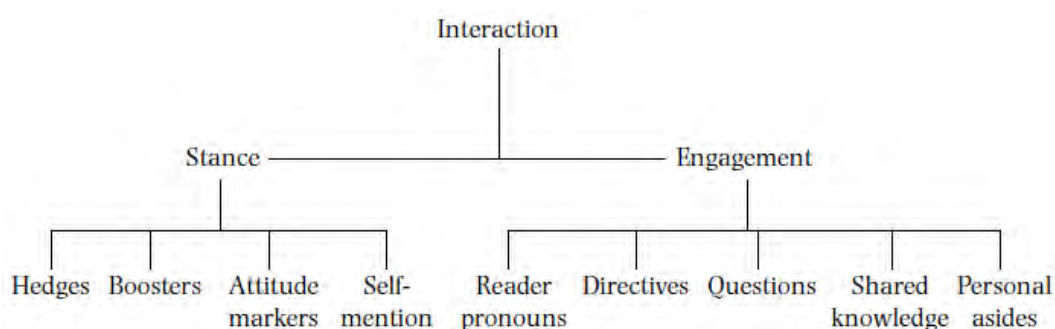

Figure 1. *Hyland's (2005, p.177) Interaction Model*

Hyland (2005) divides the interaction in academic writing into two different types; stance and engagement. Stance is a writer-oriented interaction, which refers to the position an author takes in a discourse. Stance of the writer in discourse is established by the use of *hedges, boosters, attitude markers,* and *self-mention*.

In Hyland's (2005) interaction model, engagement markers yield reader-oriented interaction in academic discourses. According to Hyland (2005), engagement features provide "alignment dimension where writers acknowledge and connect to others, recognizing the presence of their readers, pulling them along with their argument, focusing their attention, acknowledging their uncertainties, including them as discourse participants, and guiding them to interpretations" (p. 176). Hyland (2005) divides Engagement features into five different categories as *reader pronouns, directives, questions, appeal to shared knowledge,* and *personal asides*. As the focus of the present study is the use of engagement features, therefore, its sub-categories need further explanation.

Reader pronoun. Reader pronouns present a direct way to interact with the reader. The most commonly used reader pronouns are you and your; however, an 'inclusive we' and 'our' can also be used as the positive politeness strategy to engage the reader into a discourse (Hyland, 2005).

Directives. Directives are realized through imperatives and obligation modals (Hyland, 2001). Directives have the potential to make the reader perform three types of acts, i.e., *textual acts, cognitive acts* and *physical acts* (Hyland, 2001). Textual acts guide readers to consult other parts of the text: physical acts make readers to perform some action in the real-world situation, and cognitive acts encourage readers to consider any proposition or argument (Hyland, 2005).

Appeal to shared knowledge. This sub-category of engagement draws the attention of the reader to some shared background knowledge or to a familiar concept. It is a strategy which mutually involves reader and writer in the construction of an argument (Hyland, 2005).

Questions. Questions are the discourse strategy used by the writer to dialogically engage the reader (Hyland, 2005). Generally, the question is not meant to be answered as the writers themselves answer the questions. They are used by the authors to emphasize on or support their arguments.

Personal Aside. Personal asides refer to the act of interrupting the argument and directly speaking to the reader. Through personal asides writers directly comment on their argument (Hyland, 2005).

Interaction Model informed Cross-disciplinary Research

Hyland's (2008) work applies Interaction Model on the academic discourse of 1.2million words. His corpus was based on the research articles collected from eight diverse disciplines, e.g. Sociology, Mechanical Engineering, Marketing, Physics, Philosophy, Electric Engineering, Microbiology, and Applied Linguistics. The study shows that authors frequently use stance and engagement features in academic research discourse. Hyland (2005) finds that, for all the selected disciplines, stance features occur more than the engagement features. Moreover, Stance and engagement features were found to have the highest frequency occurrences for the field of Philosophy and lowest for Microbiology and Mechanical Engineering.

Ansarin and Aliabdi (2011) have conducted a cross-cultural comparative study on the use of engagement features in English and Persian Applied Linguistics articles. Their findings suggest that English writers involve their readers more into their texts as compared to the Persian writers. Engagement features were used almost twice more by

the English native writers as compared to the Persian writers. Another significant contribution of the research was that Ansarin and Aliabdi (2011) distributed Hyland's (2005) uncategorized list of lexical resources of engagement features into five sub-categories of *directives*, *appeals to shared knowledge*, *personal asides*, and *reader pronouns*.

Sayah and Hashemi (2014) have also conducted a cross-disciplinary research to explore the use of stance and engagement features in the academic discourse. Their study is based on the corpus of ninety research articles in the fields of Sociology, Linguistics, and Education. The findings of the study reveal the differential use of certain engagement features, e.g. *appeals to shared knowledge* and *directives* for the selected disciplines. The study shows that *reader pronoun* is the most frequently used Engagement feature in the research articles of Sociology; whereas, *personal asides* and *questions* are widely used in the field of Education (Sayah & Hashemi, 2014).

Taki and Jafarpour (2012) have conducted a cross-cultural and cross-disciplinary study on the academic research discourse in the fields of Sociology and Chemistry. English corpus was collected from the International Journals in English and the Persian corpus was gathered from the Iranian Journals in Persian. Comparatively, the study shows that for both the languages, the stance and engagement features are more frequently used for the academic research discourse in Sociology than that in Chemistry. The study also highlights that engagement features are less frequently used by English writers than Persian writers. For instance, in Chemistry the percentage use of engagement features was found 10.2% for Persian writers and 7.5% for English writers. Similarly, in Sociology, Persian writers make use of 27.5% engagement features which is marginally more than 26.6% use of engagement features by English writers.

Yang (2014) has compared speech discourse for the use of stance and engagement features in the domains of soft and hard sciences. The study compares two corpora, i.e., British Academic Spoken English (BASE) and London-Lund Corpus of Spoken English (LLC). The findings reveal that there exists a subtle variation for the use of stance features and a relatively more pronounced variation for the engagement feature of *reader pronouns*.

In the Pakistani context, Fazal (2014) has explored the use of engagement features in the undergraduate theses in the disciplines of Applied Linguistics and English Literature. The study highlights that in field of Applied Linguistics, research scholars make more use of *reader pronouns* and *directives* as compared to the research scholars from the field of English Literature. *Personal a sides* is the least used engagement feature and its use is found equally distributed for both the disciplines. Nevertheless, the total corpus size used for this study is less than 0.4 million and further research is required to study the use of engagement features in the academic research discourse produced by Pakistani scholars.

Methodology

The study employs quantitative techniques to comparatively explore the use of engagement features in PhD theses of the natural and the social sciences. For this purpose, a corpus of PARD was developed comprising a corpus data of more than 6 million tokens. Later on, the quantitative differences in the use of engagement features are interpreted in the light of the previous studies.

Data Collection

Pakistan Research Repository (www.prr.hec.gov.pk) is the largest source of academic research discourse. It is a large database of PhD theses written by Pakistani scholars. For the present study, 120 PhD theses were randomly selected, from this database, as a representative academic discourse for the natural and the social sciences. For the natural sciences, the selected academic discourse of 60 PhD theses comprised the subjects of Chemistry, Biochemistry, and Physics. Whereas, for the social sciences, the selected academic discourse of 60 PhD theses comprised the subjects of Education, Economics and Sociology (see. Fig 2).
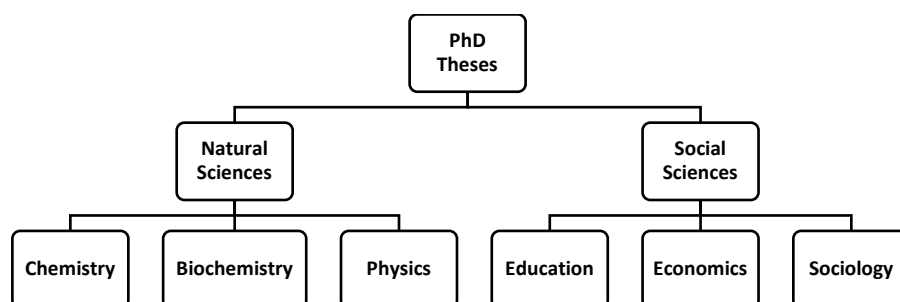

Figure 2. *Discipline and Subject-wise Distribution of the Data*

This distribution of the corpus data among disciplines was expected to provide the representative sample of the academic discourses of the natural and the social sciences. In our collected corpus, there were 2179200 word-tokens for the theses in the natural sciences and 4098774 word-tokens for the theses in the social sciences. The scheme of the data is given below:

Table 1
Corpus Scheme for Theses in Natural and Social Sciences

Natural Sciences	No. of Theses	No. of Tokens	Social Sciences	No. of Theses	No. of Tokens
Chemistry	20	805892	Education	20	1022426
Biochemistry	20	775834	Economics	20	1422874
Physics	20	597474	Sociology	20	1653474
Total	60	2179200	Total	60	4098774

Data Analysis Tools

For data analysis, a corpus analysis tool, AntConc 3.4.4w, was used. This software has multiple options and can produce word-lists, explore concordances, generate collocative patterns, and identify clusters and N-grams.

The other data collection tool was Hyland's (2005) proposed list of linguistic resources of engagement features which are employed by the writers to engage their readers (see Appendix A). Ansarin and Aliabdi (2011) have distributed these linguistic resources across sub-categories of engagement features.

Procedure for Data Analysis

PhD theses in the selected disciplines were downloaded from Pakistan Research Repository to compile our corpus of PARD of more than 6 million word-tokens. Later on, the data was cleaned by excluding the unnecessary sections of the theses, e.g. initial pages, references, and appendices. Then the pdf files of PhD theses were converted from pdf file format to text file format. This file-format conversion was necessary, as the corpus analysis program, AntConc 3.4.4w, can read only files in text format.

Hyland's (2005) list of linguistic resources of engagement features was used to produce wordlists and concordances of keywords through AntConc 3.4.4w. Later on, a keyword analysis was conducted to contextually identify the types of engagement features and ignore the lexical items that do not engage the reader into the text. The frequency occurrences for the engagement features in both the corpora were tabulated for the subsequent analysis and interpretation.
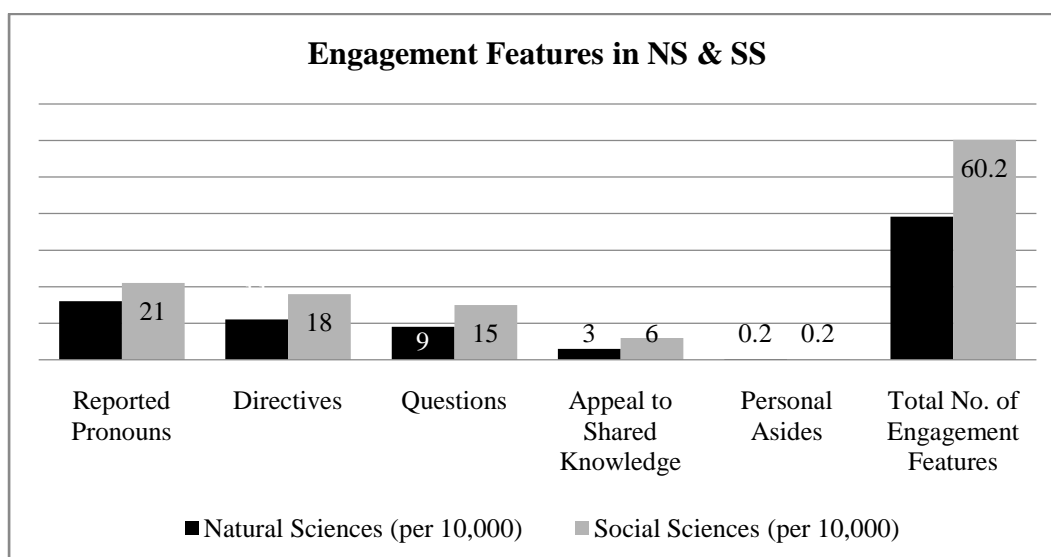
Data Analysis and Discussion

The frequency of the use of different engagement features such as *reader pronoun, directives, questions, appeals to shared knowledge,* and *personal asides* are comparatively given below in table 2 and fig 3. The data shows that the total number of engagement features per 10,000 words in the natural and social sciences are 39.2 and 60.2, respectively. This marks that the engagement features are more frequently employed in the academic discourses of the social sciences, as compared to the natural sciences. The frequency of the use of *reported pronouns, questions, appeal to shared knowledge,* and *personal asides* was consistently found higher for the Social Sciences.

Table 2

Comparative table of Engagement Features in Natural and Social Sciences

	Total Frequency	NS per 10000	Total Frequency	SS per 10000
Reported Pronouns	3504	16	8589	21
Directives	2409	11	7362	18
Questions	1961	9	6148	15
Appeal to Shared Knowledge	653	3	2459	6
Personal Asides	43	0.2	82	0.2
Total No. of Engagement Features	8570	39.2	24640	60.2

Figure 3. *Comparative Graph of Engagement Features in Natural and Social Sciences*

Reported Pronouns are the most frequently used engagement feature in both corpora. Among the reported pronouns, first-person plural pronoun 'we' shows the writer's solidarity with the reader. The use of inclusive 'we' is quite often used as a positive politeness strategy. In our corpus, the use of inclusive "we' per 10,000 words remained 6 each for the natural and the social sciences corpora. The differences in the use of reported pronouns were found for 'you', 'your', 'yourself', 'us' and 'ours'; which were more frequently found in the corpus of social sciences. These findings are in line with Sayah and Hashemi (2014) and Yang (2014), as they also found more frequent use of *reader pronouns* in the research articles of social sciences.

Directives are the second most frequently used engagement features in our corpus. Directives, e.g. 'should', 'must', 'define', 'develop', 'find', and 'imagine' are the most frequently used *directives* in the corpus of social sciences. Comparatively, in the natural sciences, *directives* were less frequently employed by the writers. This is slightly contrary to the cross-disciplinary research conducted by Hyland (2011); however, the differential use of engagement features by the native and the non-native writers can be attributed as a possible reason, in this regard. In future, the academic discourse produced by the native and non-native writers can be explored to identify more quantitative and qualitative differences in the use of other engagement features as well.

Keywords explored to find out reader-engaging *questions* in both corpora included, 'where', 'why', 'when', 'how', 'do', 'does', 'did'. The findings show a difference in the use of questions, as in the corpus of social sciences, *questions* were more frequently used to involve readers to engage in a dialogic relationship with the writer. These findings are similar to the cross-disciplinary research by Sayah and Hashemi (2014). Furthermore, the results show that, in the social sciences corpus, the most frequently used question marker is 'when' and the least used question marker is 'did'.

Phrases e.g. 'as we know', 'by the way', 'of course' etc., typically draw the attention of the reader towards the knowledge shared both by the writer and the reader. This *appeal to shared knowledge* was quite marginal in our data. Similarly, there was a minimum use of *personal asides* in both corpora of the natural and the social sciences.

The study focuses on the rhetorical features of engagement used in the Pakistani academic research discourse. It highlights the importance of the use of engagement features in academic texts aimed to involve the reader in the discourse. The study has shown that each disciplinary discourse community employs different discursive strategies to mark their knowledge territories. Therefore, along with the linguistic competence of the language, the writers need to develop their rhetorical competence as well. We believe that, through effective ESP courses, new L2 scholars can be introduced to the linguistic resources of engagement features to help them present their arguments more persuasively and engagingly. In this regard, language teachers can develop language teaching resources to improve the academic writing skills of their students.

Conclusion

The study has explored the use of engagement features in Pakistani academic research discourse of the natural and the social sciences. Comparatively, the findings show that in the social sciences writers more frequently use rhetorical features, e.g. *reader pronouns, directives,* and *questions* to establish a writer-reader relationship in their research discourse. The findings are in line with Hyland (2005 & 2010) who maintains that the

writers in the social sciences have more liberty to construe their persona in the texts; whereas, in the natural sciences the writers focus more on reporting the empirical facts. A caveat of the study is that we may still not generalize the findings of this research as the representative of the natural and the social sciences, as the study focused on only six disciplines for the both sciences. Therefore, further research is required to comprehend the rhetorical choices made by the research scholars in different disciplinary cultures to define their social research groups.

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