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Hedging as a Marker of Variation in Pakistani Research Dissertations of Sciences and Social Sciences

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ABSTRACT

Perspicuous organization and persuasion are required in academic writing for creating unity, making claims, sequencing, and eloquence. Hedging is a distinctive aspect of academic writing. Hedging can be employed as a communicative strategy to decrease or enhance the strength of claims (Hyland, 1998). This research study explores the frequencies and grammatical categories of hedges in the research dissertations written by Pakistani authors. The corpus of the study contains 150 research dissertations of sciences and social sciences. The frequencies and forms of hedges are examined by utilizing Varttala's (1999) classification of Hedges. Lists of hedges have been developed to identify the different categories of hedges. Instances of hedges have been extracted from the corpora with the help of AntConc 3.5.8 (2019) software. The results reveal that the authors from the field of social sciences are more careful and cautious in making their claims as compared to the sciences.

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1. Introduction

Writing effectively is not a leisurely task for non-native writers, particularly those who start their work as strangers in academia; they have to make strenuous efforts to encounter the challenges of dissertation writing. Academic writing requires awareness regarding conventions and norms of various disciplines. These norms might assure the researchers that their efforts will be acknowledged by the members of their discourse community. Hyland (2004) states that metadiscourse is a significant way of characterizing various elements of the discourse community

which are utilized by its members. Vande Kopple (1985) defined metadiscourse as discourse about discourse. Mauranen (1993) describes metadiscourse as a particular feature of the writing beyond propositional content.

Metadiscourse directs and guides the readers to appraise the text (Hyland, 1998). Hyland (2004) has classified two major categories of metadiscourse, namely interactive and interactional. The interactive category permits the authors to handle the flow of information to explicitly ascertain their interpretations. It involves evidentials, code glosses, transition markers, frame markers, and endophoric markers. These metadiscourse resources help to organize the text and to anticipate the knowledge of readers. The category of interactional metadiscourse involves the efforts of the authors to manage the writer's persona in the discourse and to create an appropriate connection with the text. This category of metadiscourse embraces hedges, self-mentions, boosters, engagement markers, and attitude markers.

This research study concentrates on hedges, which is a subcategory of interactional metadiscourse. Hedging is a significant feature of academic discourse. This term was derived by Lackoff (1972) to state those "words whose job is to make things more or less fuzzy" (p. 194). It was applied to reflect such expressions as *might*, *perhaps*, and *maybe* which are regularly utilized to meet the criteria of categorical claims. According to Hyland (2005), hedges play a crucial role in academic writing. These linguistics devices allow scholars to plan and develop the answers to research questions that are relevant in all contextual settings. Hedges can also be employed to handle stance, attitude, and proposition.

During the last few years, hedges have been examined from various perspectives by linguists and researchers. Taking into account the various descriptions and classifications of hedges, it is observed that researches on hedges were started with the meaning of this term (Salager-Meyer, Defives & Hamelynck, 1996). Hedging was characterized as a semantic and rhetorical resource employed in the scholarly discourse of specialists/experts of the underlying community. Mauranen (1997) states that there is a consistent feeling of obliqueness, uncertainty, as well as non-conclusiveness in the world of academia. According to Hyland (1995), researchers are required to state their assertions carefully, delicately, and tentatively. In this regard, Varttala (2001, p.9) maintains that instead of stating "pickles are vegetables" it would more appropriate for the scholars to place it in a careful manner and express "pickles can be seen as vegetables".

Hedges are considered "polypragmatic" due to their diverse functions by Hyland (1996, p. 256). Hyland (1998) further classifies these resources in two groups: content-oriented and reader-oriented. The type of content-oriented hedging helps to establish a liaison between the author's thoughts about the world and the real world. These resources facilitate authors to present the assertions as objectively as possible and to predict the contrary assertions as well. This category of hedges is also considered as a device that helps the authors to remain impersonal. Reader-oriented hedges assist the authors to establish an interactional relationship with their audience/readers. Acknowledgment of readers is a dominant feature in the collective accreditation of knowledge. This kind of hedges recognizes the role of the audience/readers in representing the status of claims.

Varttala (1999) explored the functions of hedges in research articles of medicine. This study demonstrates that hedging can be employed as a significant resource for textual accuracy as well as elusiveness. Varttala (1999) employed hedges as epistemic linguistic expressions denoting five classes including main verbs, adverbs, modal/auxiliaries, nouns, and adjectives to investigate their communicative purposes. All these linguistic expressions were marked by an element of possibility

and tentativeness to represent epistemic modals.

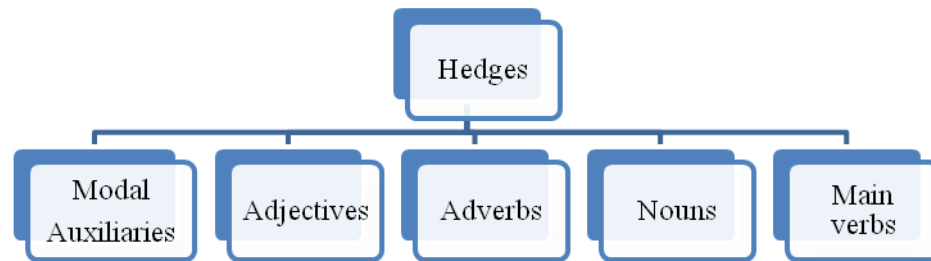


Figure 1. Varttala's (1999) Classification of Hedges

A plethora of research investigations have been carried out to examine the use and communicative functions of hedges. Hyland (1996) identified the functions, form, and distribution of various categories of hedges in the research articles of sciences. The results of his study revealed that hedging is a significant facet of academic discourse in the field of sciences. In his study, hedges played a significant role in the acceptance of claims and the process of argumentation in scientific knowledge. A research study was conducted by Musa (2014) to evaluate the use of hedges and boosters in dissertations of English and chemistry utilizing Hyland's (1998) framework of hedges at Ghana University. The results of his study demonstrated a frequent use of hedges in the discipline of English as compared to chemistry. Falahati (2004) analyzed and compared the functions of hedges in the research papers of sciences and social sciences written by English and Persian authors. The findings of this study exhibited a high occurrence of hedges in the domain of social sciences.

A cross-cultural study was carried out by Yang (2006) to investigate the variation and dissimilarities in employing hedges in the research articles of sciences written by English and Chinese researchers. The findings reflected that the academic writing of Chinese authors seems to be more commanding and direct than that of the English authors. Takimoto (2015) examined the use of boosters and hedges in the research papers of social sciences, humanities as well as natural sciences. The findings exhibited that the soft disciplines are more elucidative and explanatory whereas the hard disciplines seem to be more objective and factual along with a smaller number of boosters and hedges. Azhar et al. (2020) investigated the frequent use of hedges in Pakistani research theses with a particular focus on deontic and epistemic modality. Results of their study revealed that the distribution of hedges is significantly influenced by disciplinary norms. Batool et al. (2019) studied the use of hedges and boosters in the opinion articles of Pakistani writers. The results demonstrated that Pakistani authors utilize boosters and hedges to establish their beliefs and stance.

A large number of studies have been conducted to explore the uses and functions of hedges in the Pakistani context (Shafqat et al., 2019; Batool et al., 2019). Most of the researchers have examined the role of hedges in the genre of newspapers, opinion articles or they have focused on cross cultural studies. However, the purpose of the present study is to investigate the use and distribution of different categories of hedges in Pakistani dissertations of sciences and social sciences. The research study seeks to appraise the answers to the following research questions.

- What is the frequency of using hedges in the research dissertations of sciences and social sciences?
- Is there any variation in the distribution of different grammatical categories of hedges between the research dissertations of sciences and social sciences?

2. Method

2.1 The corpus

The corpus of the study has incorporated a total number of 150 research theses written by Pakistani research scholars from two major fields. 75 research theses have been taken from the fields of Social Sciences, whereas 75 from the field of Sciences. The domain of social sciences includes psychology, education, economics, sociology, and international relations whereas the field of sciences encompasses zoology, botany, biochemistry, earth sciences, and pharmacy. The corpus of the study contained 4,116,008 number of words. Table 1 presents the detail of word tokens in the corpus.

Table 1: Number of Words in Corpus

Corpus	
Sciences	1667051
Social Sciences	2448957
Total	4,116,008

Varttala's (1999) classification of Hedges was employed for the purpose of data analysis in this study. Frequency lists of Hedges were developed following Varttala (1999), Hyland (1998), Wang and Tatiana (2016). Lists were identified with the help of AntConc 3.5.8 (2019) software. A quantitative analysis was carried out to determine the variation between the corpora of Sciences and Social Sciences. All these instances were further analyzed to explore their grammatical categories.

3. Results

Table 2 presents the overall frequency of hedges including modal/auxiliaries, nouns, adverbs and adjectives used in the corpora of two major fields. The raw frequency lists were turned into normalized frequencies due to variation in the number of words in the corpora of both fields per 1000 words.

Table 2: Total Raw and Normalized Frequencies of Hedges

Social Sciences		Sciences	
Raw frequencies	Normalized frequencies	Raw frequencies	Normalized frequencies
28656	11.701	9300	5.578

The results of the study reveal that there is a significant difference in the use of hedges in the corpora of both fields. The researchers from the field of social sciences have employed a greater number of hedges as compared to the researchers of sciences. In the corpus of social sciences, a large number of these linguistic resources including modals, adjective, adverbs, and nouns has been utilized to express their referential and affective meaning. Hedging seems to be a significant feature of research in the field of social sciences. Data analysis discloses that sciences have appeared as a distinct field with less use of these linguistic resources. The domain of sciences presents numerical figures and data to create a more explicit representation of its work. According to Hyland (1996), researchers from the field of sciences gain integrity and credibility by expressing their strong assertions. Table 3 exhibits the percentages regarding the distribution of various categories of hedges employed in both fields.

Table 3: Percentages of Various Types of Hedges in corpus

Types	Sciences	Social Sciences
Modal/Auxiliaries	62.3%	53.21%
Main Verbs	7.48%	8.11%
Adverbs	11.12%	22.36%
Adjectives	16.1%	13.24%
Nouns	3%	3.08%

3.1 Modal/Auxiliaries

The results revealed that modal/auxiliaries are the most frequently employed category in the corpora of both fields. There are more than half instances of modal/auxiliaries in the corpora of both domains with 62.3% in sciences and 53.21% in social sciences. “Can” “may” and ‘might” are the instances of most frequently occurring modals in the corpus of sciences whereas “can”, “may”, “would” and “should” are more recurrently found in the corpus of social sciences. It is observed that the kind of modal/auxiliary hedges is the most predominant category in the research theses genre of sciences and social sciences.

3.2 Main Verbs

There are more instances of main verbs in the corpus of social sciences (8.11%) in comparison with the corpus of sciences (7.48%). Main verbs represent a traditional way of indicating epistemic tentativeness. Hyland (1998) maintains that lexical verbs are considered the most obvious way of reflecting the subjectivity of epistemic resources. Mitigation is also expressed by using lexical verbs. The lexical verbs “argue”, “claim”, “believe” and “perceive” occur far more frequently in the corpus of social sciences. However, “argue” is the most commonly employed main verb in the field of social sciences. Figure 2 portrays the detail of frequency of main verbs in the corpus of social sciences.

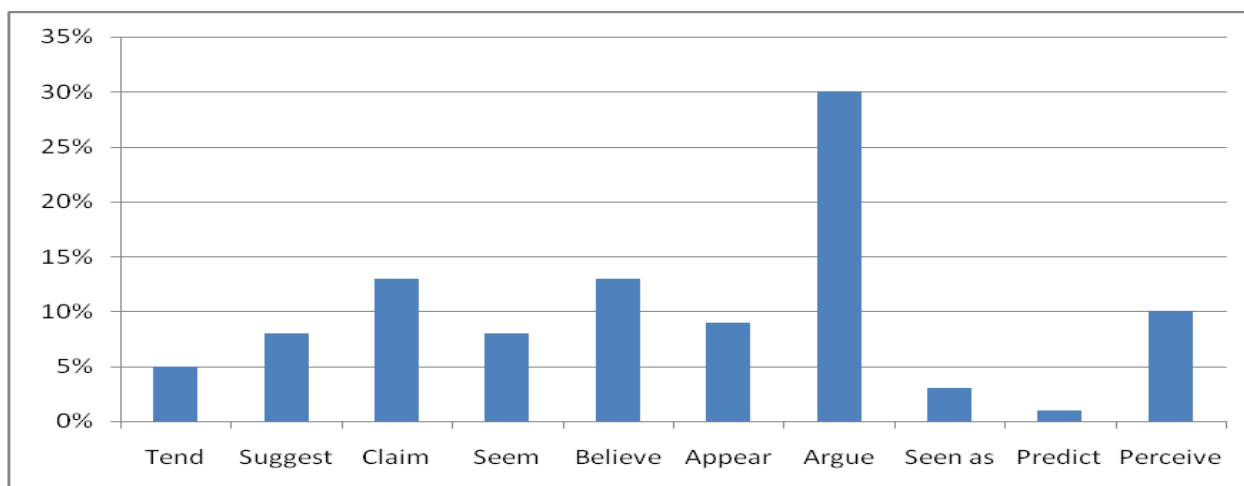


Figure 2: Epistemic Main Verbs in Social Sciences

Lexical verbs like “indicate” and “suggest” are more commonly employed by the authors of sciences. These verbs refer to speculative and estimated judgments. In the field of scientific reporting, all statements are the outcome of cautious theorizing and procedures of laboratories. Scientists are well aware of the limitations of these experiments. Consequently, they use hedges to control the force of their claims and adjust their confidence (Hyland, 1996).

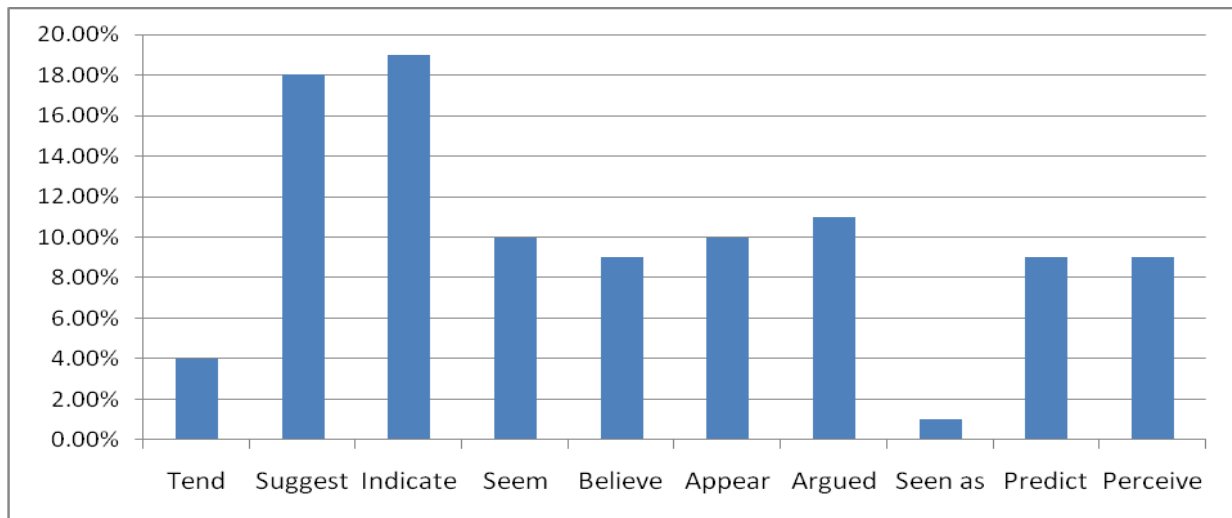


Figure 3: Epistemic Main Verbs in Sciences

3.3 Adjective, adverbs and Nouns

According to Perkin (1983), a range of adverbs and adjectives are directly associated with modality. The frequency of hedges in terms of adverbs is higher with 22.36% in the domain of social sciences than that of sciences with 11.12%. In terms of adjectives, the field of sciences is more hedged with 16.1% as compared to social sciences with 13.24%. The least frequently employed category of hedges in the corpora of both fields is nouns with 3.08% in social sciences and 3% in sciences.

4. Discussion and Conclusion

As the first research question is related to the frequencies of using hedges in the research dissertations of sciences and social sciences, the findings of the study reveal that the normalized frequency of hedges in the field of social sciences is 11.701 whereas 5.578 in the field of sciences. As far as, the answer to the second research question is concerned, the findings exhibit variation regarding the use and distribution of different grammatical categories in the corpora of both academic fields. Various categories of hedges including main verbs, nouns and adverbs have been predominantly employed in the corpus of social sciences. However, the modal/auxiliaries and adjectives have been more frequently used in the corpus of sciences. The overall comparison of hedges in the academic writing of both fields demonstrates the greater usage of hedges in the social sciences. The findings of this study correspond to Takimoto's (2015) study in which the relative frequency of hedges was higher in the academic writing of social sciences than sciences. The scholarly writing of social sciences is more explicative and subjective whereas the writings of sciences are more objective and fact-oriented (Takimoto, 2015).

The results of this study also agree with earlier researches like Azher et al. (2020) in which less use of hedges is found in sciences as compared to social sciences. The researchers from the domain of social sciences have shown their tendency towards the use of more hedges which exhibits a lack of confidence and uncertainty in presenting their claims. It is inferred that the choices of authors concerning hedges are constrained by the rhetorical norms, nature, and style of their respective disciplines. It is concluded that the use of these linguistic resources seems to differ in various disciplines. As far as the pedagogical implications of this study are concerned, the results may be valuable for teaching English to ESL learners and particularly for teaching academic writing.

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