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## *Identification of Modality in Thesis Writing: A Systemic Functional Linguistics Perspective*

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### **Abstract**

Modality refers to the speaker's judgment. It seeks a listener's judgment on the status of what is being stated. This study was set out to examine the prevalence and functions of modality in the research writing of MPhil scholars of Government College University Faisalabad (GCUF). For this purpose, the data were collected in the form of six theses belonging to MPhil scholars of GCUF, and all of them were from the Department of Applied Linguistics. The design of this study was a mixed-method. UAM corpus tool was used for the codification of the data. The modal used was the Systemic Functional modal of modality by Halliday (2014). The study revealed that the most frequent type of modality was probability and the frequent value was low in the writing. Besides this, scholars used modality more subjectively and implicitly rather than objectively and explicitly. Furthermore, results showed that the most common functions for which researchers employ modality in the theses were making tentative statements, ignoring direct criticism, and acknowledging the limitations of their research findings. The study's findings assist the teachers and syllabus designers



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by pointing out the flaws of ESL learners, and they can work and improve the syllabus accordingly.

**Keywords:** SFL, modality, thesis, ESL, probability

## **1. Introduction**

Halliday (2009) developed Systemic Functional Linguistics (SFL) in 1961. He was inspired by J.R Firth and took this notion from him. SFL is a study of the relationship between the language and the functions it performs in a social setup. It treats grammar as a resource for making meaning and focuses on the relationship between meaning and form. Halliday (1994) proposed three metafunctions of language, which are ideational, textual, and interpersonal. In ideational metafunction, language is to do with developing and continuing theory about experiences. It is all concerned with the natural world around us. Textual metafunction is all concerned with the verbal world. In contrast, interpersonal met-function is all concerned with the social world around us, specifically the relationship between listener and speaker.

In interpersonal metafunction, there is a grammatical system of mood and modality. The mood is a grammatical system by which interpersonal meanings are shown in conversation. It has two components, subject and finite. As far as a modality is concerned, Halliday (2014) defines modality as it refers to the speaker's judgment or seeks the listener's judgment on the status of what is being stated. The in-between degrees between negative and positive poles are together called modality. The function of modality is to construct the place of uncertainty that lies between *yes* and *no* (Halliday, 2014).

Halliday has discussed modality from different dimensions. The modality has four variables, according to Halliday (2014). The first of which is related to its two types, modulation and modalization depending upon whether it expresses proposition or proposal; the second is the value of modality. He categorizes modality into three values: median, high, and low modal verbs, and mood adjunct expresses different modality values. The third is the orientation of modality, which means whether a speaker has used modality subjectively or objectively. The last variable is the manifestation, whether modality is an implicit or explicit modality that implies that either modality is expressed within a sentence or as a separate clause.

Modality was defined and categorized by not only Halliday (1914) but by many theorists such as Palmer (2001), described and categorized modality into two types, epistemic and deontic modality. Besides Palmer (2001), there are many other theorists like Coates, Simpsons, and Bybee who provided various definitions and categorizations of modality. Even though many theorists offered multiple definitions

of modality, the core remains the same: modality is a concept that is concerned with the writer or speaker's involvement regarding the propositional matter of utterance. Writers realize modality in different ways; the most common and obvious form of realizing modality is through modal verbs, but modality is also realized through adverbs, adjectives, nouns, lexical verbs, and past participles in writing.

In the past, there has been extensive research conducted on modality. Researchers have examined modality in both literary and non-literary texts from different aspects. The modality has been investigated in poetry, novels, and short stories in the literary text. As far as non-literary texts are concerned, the modality has been examined in political speeches of different politicians, in newspapers, magazines, legal documents, sports commentaries, cookbooks, and on social media such as in Meta posts and Twitter tweets.

Modality is a very important device used in research writings; with its usage, researchers fulfill many functions such as mitigating their claims, stating their analytical scope, presenting their argument, communicating their research missions, etc. There is a lack of research in this area. So, it is required to know how researchers use modality in their research writings and achieve what type of functions by using modality. ESL learners produce much research writing, but they do not employ rhetorical strategies accurately. They mostly overuse or underuse these kinds of strategies. This research helps see how ESL learners use modality in their research writings. The study's findings assist the teachers and syllabus designers by pointing out the flaws of ESL learners, and they can work and improve the syllabus accordingly.

### **1.1 Objectives of the Research**

- To examine variations of modality employed by researchers belonging to Government College University, Faisalabad, in their theses.
- To highlight the utilization and functional role of modality in theses of MPhil scholars of Government College University, Faisalabad.

### **1.2 Research Questions**

- What is the prevalence of modality in theses of researchers of Government College University, Faisalabad?
- What are different functions for which the researchers of Government College University, Faisalabad, employ modality in their theses?

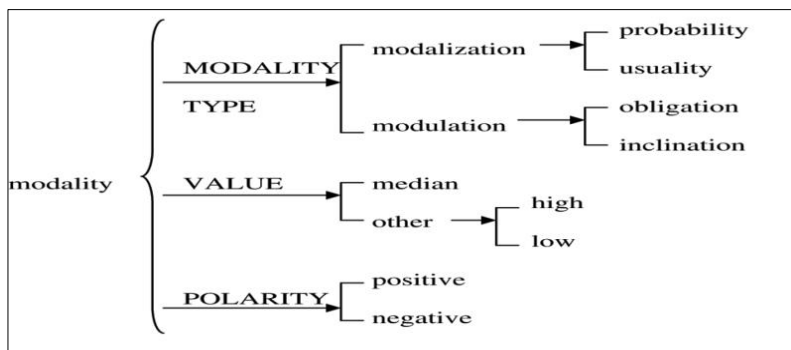
## 2. Literature Review

### 2.1 Theoretical Framework

Modality is an intermediate degree between negative and positive poles, according to Halliday (2014). The system of modality is to construct an area of certainty which lies between *yes* and *no* (Halliday, 2014). Modality is a concept concerned with the writer or speaker's involvement regarding the propositional matter of utterance, which may be in the shape of agency or subjectivity. The expression of modality is not restricted to only modal auxiliaries and semi-auxiliaries; it can be expressed by various other means. Halliday (2014) construes two observations regarding modality, which are as follows:

1. There is no sense in the system of modality. Modality is a speaker or writer's judgment or opinion about a thesis. It relates solely to the speaker or writer now. It means they are outside the tense area, but the modality can unite freely with tense.
2. Modality shows the speaker or writer's probability assessment, which means modality cannot express negative but can't negate. Still, it can attach with negative in a way that its thesis turns negative.

The modality system planned by Halliday consists of four variables: type, value orientation, and manifestation. The system of modality proposed by Halliday (2014) is shown in figure 1.



*Figure 1: Halliday's Modality System (2014)*

## **2.2 Previous Studies**

Btoosh's (2019) objective of the research was to investigate how Arabic students utilized modality markers in their academic writings and how they differ from native speakers of English regarding the usage of modality markers. Two corpora were used in the study. The native speakers' data was extracted from the corpus named LOCNESS. For the Arabic learners' data, a corpus named ICASE contained writing of Jordan undergraduate students, mostly in their fourth and second years. AntConc and Claws POS tagger was used for the data analysis. Carter and MCarthy's (2006) models were used in this research. The study showed many similarities in the usage of modality markers in Arabic learners and native speakers; however, Arabic learners sometimes misused and underused modality markers such as 'must' are overused by Arabic learners, almost thrice time more than the native speakers of English.

Yang (2018) aimed to examine how Chinese learners use modal verbs of the English language. To fulfill the aim of this research, the study used two corpora. The first corpus is the learner corpus, which contains the academic writing of Chinese learners. The second corpora consist of professional researchers who have published research papers in different journals. AntConc was used to analyze data; only nine modal verbs were examined in the data. The result of the study disclosed that Chinese learners use more modal expressions than professionals, and they also overuse some auxiliaries such as 'would' and 'can' and underuse some like 'May'. There are some limitations of this study, such as the length of the professional corpora was very large compared to learner corpora, and, secondly, not all modal verbs were examined in this study.

Vicic and Petek (2016) analyzed how modal verbs express modality in logistics papers. Modal verbs were examined qualitatively as well as quantitatively in research papers. The sample used for data analyses contains sixteen research papers with 100000 words in total. Only selected modal and semi-modal verbs were selected for analysis. Firstly simple frequency analyses were done with the help of AntConc software. Then semantic analyses were done in which modal verbs and semi-modal verbs were classified as epistemic and deontic based on their meaning. 'Can' was the most frequent modal verb in the logistics research papers, whereas the semi-modal verb 'going to' was the least frequent in the research papers. The study results showed that the modal verb 'should' mostly expresses deontic meaning. Whereas modal verbs 'may' and 'might' were mostly used epistemically rather than deontically, they were used to negotiate claims and persuade the reader in a research paper. 'May' was the most frequent modal verb used epistemically. There were only five modal verbs that were analyzed; not all verbs were analyzed, which serve as a limitation of this research paper. The sample size was also small; only sixteen research papers were analyzed by the researchers.

Elturki and Salsbury's (2016) study's goal was to examine the role of modality in the writings of Arabic English language learners. It was corpus-driven research. The corpus used in this study was the BALC corpus which contains the writing of Arabic students and contained 1865 texts in total. The learners were mostly in the last year of their high school. The Wordsmith tool was used to extract the frequency from the data, and the theoretical framework used in this study was the Palmer model of modality. The result of the study showed that when a student becomes more proficient in the usage of the English language, he becomes more fluent and tries to use complex forms of modality in his writing.

Tenuta, Oliveira, and Orfanó (2015) aimed to examine how Brazilian learners differ in modality usage by a native speaker of English. There are two corpora used in this study one was LOCNESS which contains native speakers writing other was CABRI which includes the writing of Brazilian learners. The theoretical used in this study was Halliday's (2004) modal of modality. AntConc software was used in this study to extract frequency from the data. The study showed that the most frequent modal verb in native-speaker writing was 'Can', while in learners writing, the most frequent modality marker was 'will'. Furthermore, the result showed that native speakers use a varied expression of modality compared to learners, which means that material should be developed so that it will help learners express modality by different expressions.

Heydarnia and Aidinlou (2015) examined the difference in the use of mood and modality in the academic writing of male and female writers belonging to applied linguistics. A sample of forty research papers was selected; twenty belonged to non-native female Iranian students, and twenty belonged to non-native Iranian male students. Researchers' goals were to see if there was any difference in the usage of these elements. A Chi-square test was used to analyze the data. The study results showed no significant difference in the use of mood and modality between males and females. The limitation of this study was that students belonging to only one field were selected, and the corpus used in this study was also small.

Hu and Li (2015) examined in what dimension Chinese learners differ from the native speakers in their usage of modality and to what degree Chinese learners' mastery of modality develops with their proficiency in the English language. The data used in this research was written as part of the ICNALE corpus, which contains argumentative essays written by non-native Asian learners and native speakers. AntConc software was used to analyze the collected data. The study results showed that Chinese learners use a more limited and simple type of modality expressions. This study also revealed that more proficient Chinese learners use more tentative expressions than certainty markers than native speakers. They concluded that Chinese learners use fewer hedges and boosters than native speakers.

Salazar and Verdaguer (2009) analyzed modality, expressed by polysemous lexical verbs in students' argumentative writing. It was a corpus-based study, and three corpora were used in the study: first was the Spanish sub-corpora SPICLE which contains essays of Spanish learners of English; the second was LOCNESS which includes essays of native speakers; and the third corpus, which was used in the study, was FIL corpus which comprises of essays of Filipino students. Twenty-three lexical verbs were selected for analysis. AntConc software was used to calculate the frequencies of lexical verbs in the data. The most frequent polysemous lexical used by native speakers was 'feel'. Filipino students used polysemous lexical 'believe' more frequently, whereas, in Spanish data, the most frequent polysemous verb was 'think'. The result of the study revealed that non-native speakers have no such grasp of the meaning of verbs compared to native speakers. The result showed that all the studies, whether native or non-native, use a minimal range of polysemous verbs to show modality. Only 23 verbs were analyzed, which is very limited and only polysemous verbs were analyzed.

Vazquez and Giner (2008) examined epistemic modality in students' writing belonging to different disciplines. The sample contains twelve articles in total; four belong to the students of marketing, four to mechanical engineering, and four to students of biology. Hyland's (2005) modal was used as a theoretical framework. The frequency was extracted from the data manually by the researchers. This research showed that students of marketing rarely employ modality in their writing. In contrast, a student of engineering uses more modality as compared to the other two and differs in the use of markers to convey modality may depend on the nature of data belonging to different disciplines.

Aijmer (2002) investigated and compared modality in the writing of native learners belonging to the field of computer science and non-native learners of some advanced universities. The sample used in this study contained data from non-native learners from three different countries, France, Sweden, and Germany. The study employed Palmer's modal of modality for the data analysis. AntConc tool was used by the researcher in this study to extract the modality markers present in the data. The study showed that all the non-native learners, whether they were from France, Germany, or Sweden, overuse modalities in their writings, while native learners did not. Furthermore, he found that in the usage of modality by the non-native speakers, there is the interference of register, which means that followed pattern of speaking in the written medium.

Martin (2001) investigated the types of modality expression and the frequency of these expressions in the abstracts of Spanish and English research articles. A random sampling technique was used to collect data. The corpus of the English language was collected from two journals, namely 'Applied Psycholinguistics and 'The British

Journal of Psychology. A total of forty research abstracts were collected from these journals, twenty from each. On the other hand, Spanish research articles were collected from the journals 'Psicológica' and 'Análisis y Modificación de la Conducta'. The researcher then divided the abstract into four parts, Introduction, results, methods, and discussion, and examined the frequency of modality expression in these parts of abstracts. Data analysis showed that researchers of both languages have used modality in the discussion section most frequently and least frequently in the result section. Spanish researchers mainly expressed modality primarily through modal verbs. In contrast, English researchers primarily expressed modality through epistemic verbs. English researchers used more modality expression than Spanish researchers, and both researchers mainly employed this modality expression to mediate claims. There was no model of modality used in this study also. Researchers' main concentration was on epistemic modality. Deontic modality was primarily neglected in this study.

Hykes (2000) examined how graduate students differ in modality usage by professionals. Three corpora were utilized in this study: first was the learner corpus which consists of writing of non-native graduate students. On the other hand, professional writings were based on two corpora, Longman and Archer. AntConc and a tagger made by Biber were used in this study for analysis. The result of the study showed that students' usage of modality is more frequent in their writing twice as compared to the writing of professionals. The result further revealed that both professionals and students use modality more in their discussion than in other sections of the articles.

Many types of research studies have been done on academic writing, but most of the studies were conducted on learners' argumentative writing. There are only a few pieces of studies which had been done on research writing, such as Heydarnia and Aidinlou (2015), Vazquez and Giner (2008), and Martin (2001). Still, none of them had examined modality in research writing of Pakistani students. Furthermore, they used a theoretical framework of Palmer in their studies. Heydarnia and Aidinlou (2015) though used the theoretical framework of Halliday (2014) in their research still they have examined only one dimension of modality, that is, the type of modality in their research work. This study examines modality in the research writings of the Pakistani students. It examines all the dimensions of modality, which are types, value, orientation, and manifestation by employing Halliday's (2014) modal of modality.

### **3. Research Methodology**

#### **3.1 Design and Model**

The design of this research is mixed-method. Both qualitative and quantitative paradigms are used in the study. The quantitative method is used in this study to



extract the frequency of modality from the data, while the qualitative paradigm is used to interpret the results.

The modal used in this study was Halliday's (2014) modal of modality. The modal deals with different aspects of modality, as Halliday (2014) provides modality types and talks about the value of modality, whether the modality used is high, low, or median. In his modal, he also talks about the orientation of modality, which means that the modality used conveys a subjective sense or objective. Furthermore, in his modal, there is also the manifestation of modality which means that either the modality is part of a clause or a separate clause. In short, Halliday's (2014) modal provides a chance to look at modality from different aspects.

### **3.2 Sample and Tool**

The sample used in this study contained research writing of MPhil scholars of GCUF. Six theses were selected for data analysis, and all of them belong to the discipline of English Linguistics. For data analysis, only the result and discussion sections were selected. It is where modality mostly occurred and plays a vital role because result and discussion sections are more relied on modality expression due to its property of relating claims without evidence, truth judgments, and certainty.

**Table 01:** A Summary of Data Size and Distribution

---

<b>File</b>	<b>Words</b>
File 1	9271
File 2	6369
File 3	16123
File 4	21885
File 5	30174
File 6	40021
<b>Total</b>	<b>123843</b>

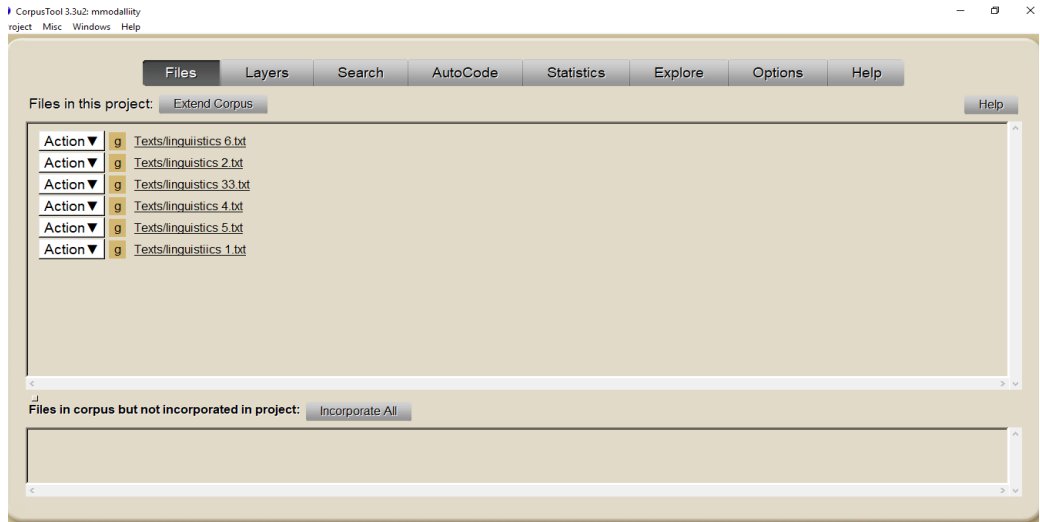
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To extract frequency from the data, the UAM corpus tool was utilized in this study. It has given the statistical information. The statistical data gained with the help of UAM showed the percentages of modality in the data. UAM corpus tool is a free tool that can be used for manifold annotation of text. It provides annotation of SFL and extended mood, transitivity, theme, Stanford parse, and modality.

### **3.3 Process of Data Analysis**

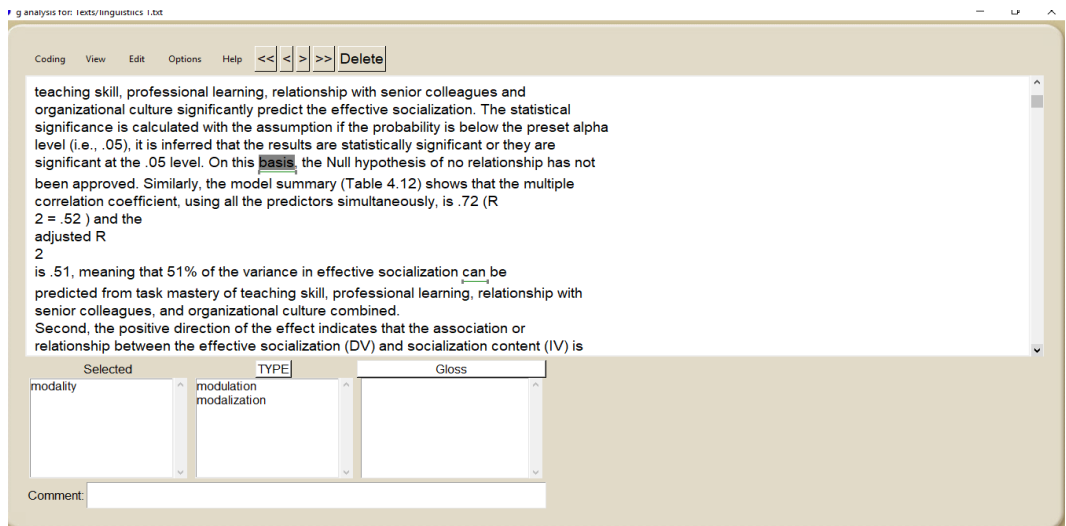
## Identification of Modality in Thesis . . .

In the first step, all the files of collected data were incorporated into the UAM software. Firstly six files were uploaded and then incorporated into the UAM one by one.



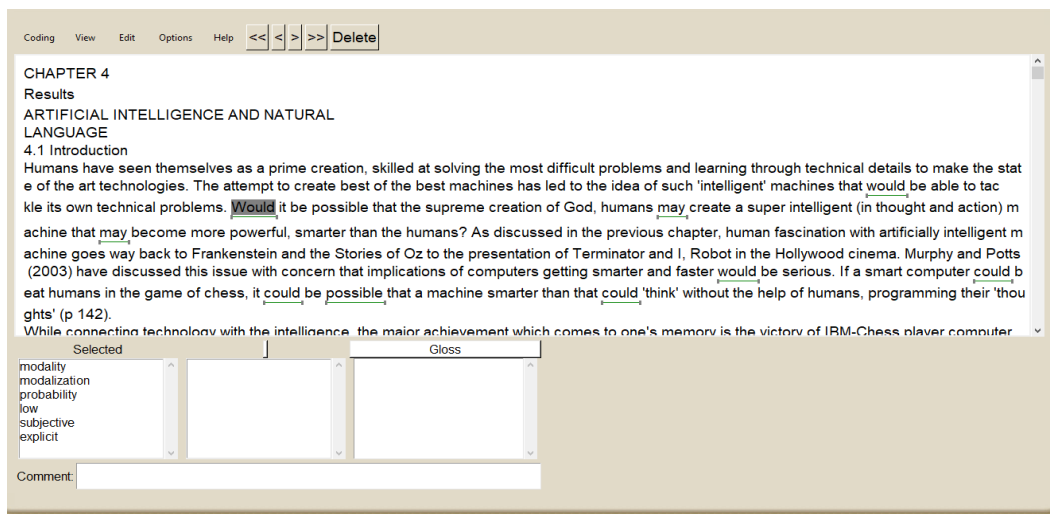
**Figure 2: Incorporation of the Data into UAM**

In the second step, the incorporated files were annotated. Words were set to realize modality in the files.



**Figure 3: Annotation of the Data**

In the third step, the recognized words were assigned features with the help of a scheme that had been built manually. The features were assigned to the words by double-clicking the words, and, afterward, the study had to choose from the list of features.



**Figure 4: Features Assigning with the Help of a Scheme**

After all the files were assigned features one by one the results were extracted by clicking the statistics section of UAM software. This section shows the percentage of every feature in the data.

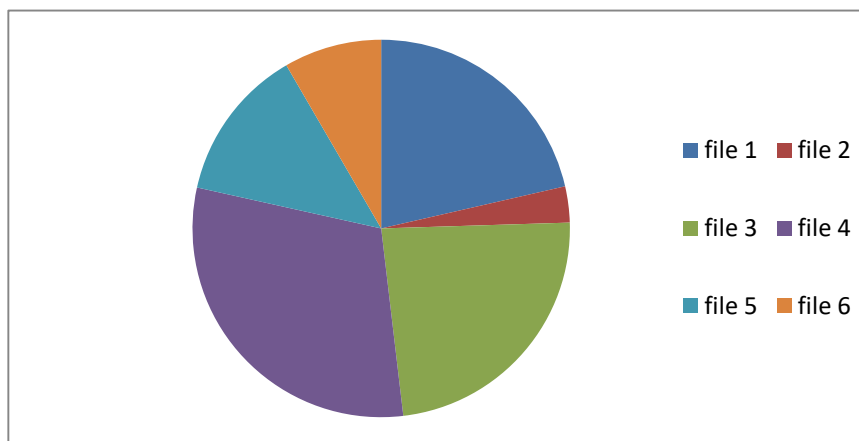
modulation	14	7.22%	6	21.43%	27	12.62%	109	39.64%	26	21.85%	23	3
modalization	168	86.60%	18	64.29%	172	80.37%	136	49.45%	92	77.31%	51	6
MODULATION-TYPE	N=194		N=28		N=214		N=275		N=119		N=7	
obligation	13	6.70%	4	14.29%	26	12.15%	86	31.27%	23	19.33%	22	2
inclination	1	0.52%	1	3.57%	1	0.47%	19	6.91%	3	2.52%	1	
MODALIZATION-TYPE	N=194		N=28		N=214		N=275		N=119		N=7	
probability	161	82.99%	16	57.14%	118	55.14%	91	33.09%	66	55.46%	30	3
uality	7	3.61%	2	7.14%	54	25.23%	45	16.36%	26	21.85%	20	2
PLUE	N=194		N=28		N=214		N=275		N=119		N=7	
igh	4	2.06%	9	32.14%	62	28.97%	49	17.82%	20	16.81%	18	2
edian	50	25.77%	12	42.86%	31	14.49%	63	22.91%	47	39.50%	22	2
ow	128	65.98%	2	7.14%	106	49.53%	129	46.91%	51	42.86%	33	4
MENTATION	N=194		N=28		N=214		N=275		N=119		N=7	
bjective	42	21.65%	7	25.00%	95	44.39%	71	25.82%	47	39.50%	31	4
ubjective	137	70.62%	11	39.29%	104	48.60%	157	57.09%	68	57.14%	40	5

**Figure.5. Percentage of the Features**

## 4. Results and Discussion

### 4.1 Overview of the Frequency of Modality

The data analysis showed that scholars had used a total of 906 times modality in their research writings. In figure 6 the distribution of modality across all the six theses which have been taken for analysis has been shown.

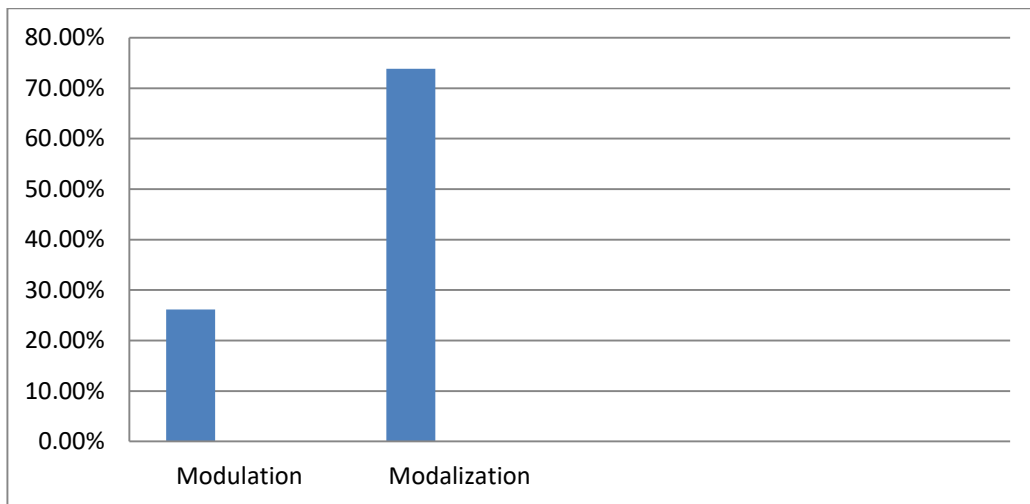


*Figure 6: Distribution of Modality across the Files*

MPhil scholars have primarily used modal verbs to realize modality in their writing. ‘May’, ‘might’ ‘can’, and ‘will’ are the most frequent modal verbs which are used by the scholars; not only modal verbs but also adverbs, adjectives, nouns, and lexical verbs were used by the scholars but not as much abundantly as modal verbs.

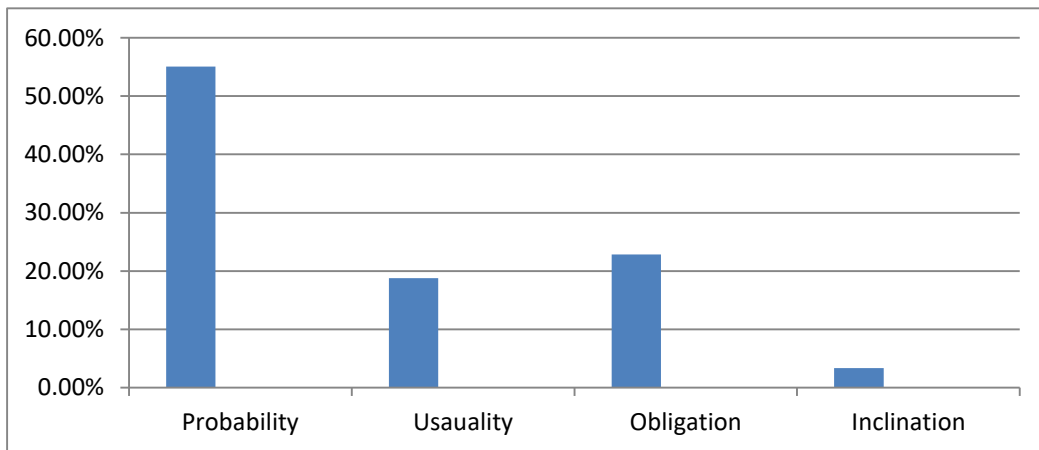
### 4.2 Modalization and Modulation

The scholars have used modalization almost three times more in their writing as compared to modulation. The total numbers of modulation occurrences in the research writing of scholars are 237 (26%), whereas modalization occurrences are 669 in number (73%). The percentages of modalization and modulation in the writing of scholars are shown in figure 7.



***Figure 7: Percentage of Modulation and Modalization***

Modulation and modalization have two subtypes: probability, usuality, obligation, and inclination. The percentage of these sub-types of modulation and modalization in the theses are given below in figure 8.

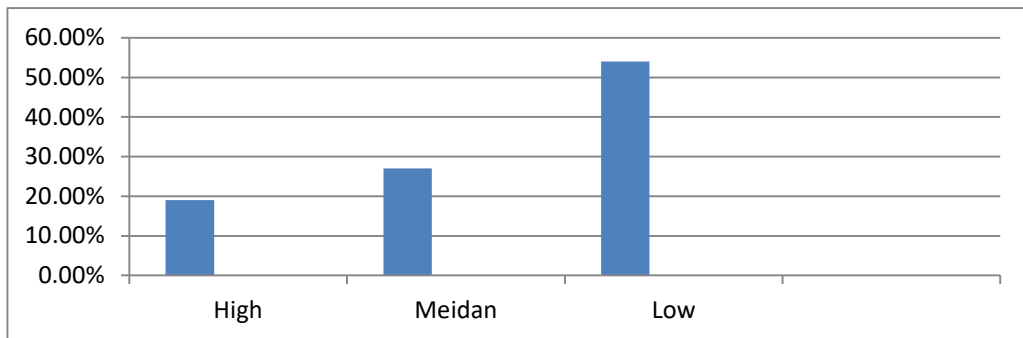


***Figure 8: Percentages of Sub-types of Modulation and Modalization***

In the above figure, the percentage of probability is 55.07% following obligation, which is 22.84%. Usuality has the percentage of 18.77% and the least frequent is an inclination with only 3.31% occurrence in the theses.

### 4.3 Value of Modality

According to Halliday (2014), there are three values of modality which are high, median and low. All of them convey the author's intentions and attitude towards the proposition. The percentages of values of modality are shown in figure 9.

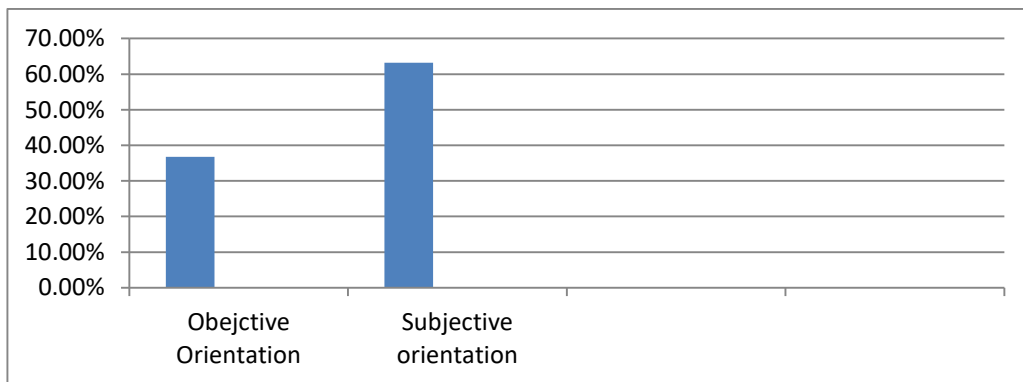


**Figure 9: Percentages of Value of Modality**

The data analysis results reveal that the percentage of the high-value modality is 18.98%; the median value is 27.04%, and the low-value percentage is 53.98%. It means that the most frequent value is a low-value modality. In contrast, the least frequent value of modality is high.

### 4.4 Orientation of Modality

Subjective modality shows clearly that it is the opinion of the speaker or writer, whereas when objective modality occurs, it looks like the event. The percentages of objective and subjective modality in data are shown in figure 10 which is given below.



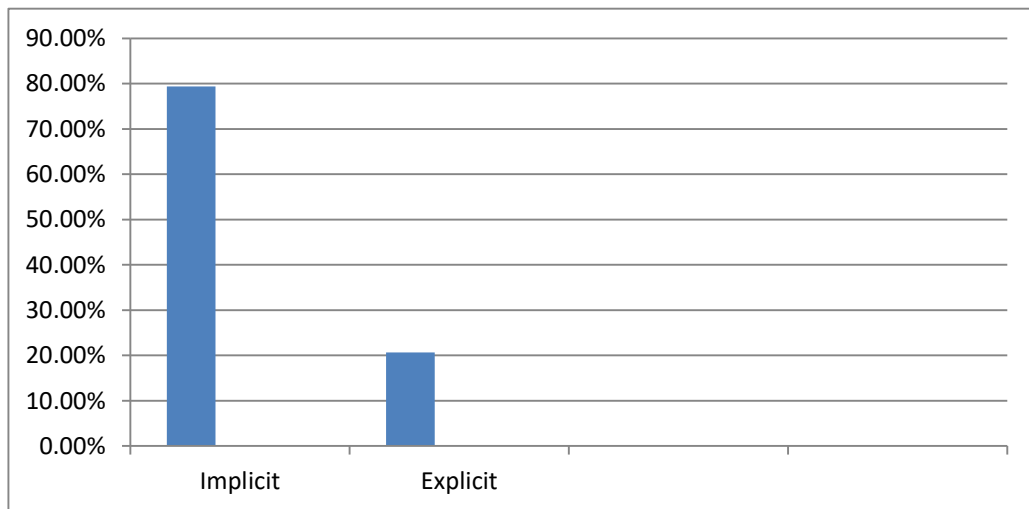
**Figure.10. Percentage of Objective and Subjective Orientations**

So from the above figure, it is clear that researchers have used subjective orientation more frequently than objective orientation. The percentage of objective orientation in research writing of scholars is 36.75%. In contrast, the percentage of subjective orientation in writing is 63.25% which is almost double as frequent as objective orientation in the data.

The findings of the study show that scholars have used subjective orientation mostly in their research writings. It suggests that they want to give notability to their point of view and opinions. They want to be responsible for the judgments and points of view they are expressing. They are suggesting and criticizing overtly. For example, the writer expresses his opinion openly about the school by using ‘I think’. He is clearly expressing his stance, not trying to shape his opinion like facts. Mostly they use subjective modality to emphasize and strengthen their point of view. The scholars used objective modality less than a subjective modality, but they have used it many times. They have used objective modality to avoid their point of view responsibility.

#### **4.5 Manifestation of Modality**

There are two ways by which modality can be expressed, implicit and explicit; this aspect of modality is called manifestation of modality. Explicit modality is a type of modality realization in which modality is realized in a sentence as a distinct clause. In contrast, implicit modality is realized as a part of the sentence. The results showed that implicit modality is 79.36% and explicit modality is 20.64% in the theses. The percentages of implicit and explicit modalities are provided in figure 11.



*Figure 11: Percentage of Manifestation of Modality*

The overall data analysis showed that probability was the most frequent type of modality in scholars' writing, and the least frequent was inclination. The most abundantly used modality value is low, and the least abundant is high in the theses. In contrast, researchers used modality more subjectively than objectively, which means that the scholars do not shape their opinions as facts. The findings also showed that modality occurred mostly as a part of a clause rather than in the distinct clause, which implies that they used modality more indirectly rather than directly. Previous studies also suggest that researchers mostly used probability in their writing to attach uncertainty to the claims they are making in research writing. As far as the value of modality is concerned, there is a past study conducted by Hykes (2000) which claimed that researchers use a high value of modality frequently in writing, but this might be due to the research articles used in that study belonging to graduate-level students and the data used here is of MPhil scholars.

There are many reasons for which researchers employ modality in their writings (Martin, 2001). The most common of them is to make tentative statements to hint or suggest that there are chances of some other possible explanation for the outcomes gained, to ignore direct criticism, to express their uncertainty that they are not fully sure about the statements, to produce tentative conclusions, acknowledge limitations of research findings, recommend implication of study and interpret results, to mitigate claims and to express necessity that some actions are compulsory to be done by doing this they directly persuade the audience but the most frequent functions for which writer employ modality in theses is to attach uncertainty with their claims. So from the result of the study, we conclude that there are many functions for which researchers used modality in their theses.

## **5. Conclusion**

The current study showed that the scholars' most frequent type of modality in their writings was probability and the least frequent was inclination obligation comes in the second position. In contrast, usuality comes in the third position. The second aspect is value. The result showed that the most used value was low, followed by median and high values. This suggests that researchers try to attach uncertainty to the claims they are making most of the time in their writing. The results of the third aspect orientation reveal that modality is used more subjectively by the scholars rather than objectively in the theses, which means that they openly take responsibility for their opinion and point of view.

The result of the last aspect, namely manifestation, reveals that the modality was used by the scholars in their writings more implicitly than explicitly, which implies that scholars indirectly express subjectiveness and their opinions rather than directly. They have used modality mostly to make their claims and statements tentative, to ignore



direct criticism, to express their uncertainty that they are not fully sure about the statements, to produce tentative conclusions, to acknowledge limitations of research findings, recommend implications of the study and interpret results, to mitigate claims and to express necessity that some actions are compulsory to be done by doing this they directly persuade the audience. So from the results of the study, it can be concluded that there are many functions for which researchers used modality in their theses by employing different types, values, manifestations, and orientations of modality.

The study will be helpful for the researchers and learners to improve themselves as they can understand how researchers use modality and what motives they accomplish by using modality in their writing. The research questions posed in this study have not been considered much in the past, so they need more consideration. Similar research can be done with large data, and research can also be conducted on the writing of graduate and undergraduate learners. The same study can be replicated within different contexts or cultures as in this study.

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