Metadiscourse in Engineering and Management Students' Spontaneous Texts

Swadha Bhartia*, Anil Sehrawat and R. C. Sharma

Amity Institute of English Studies & Research

Amity University Uttar Pradesh, Noida, INDIA

sbhartia@amity.edu

Amity Institute of Corporate Communication

Amity University Uttar Pradesh, Noida, INDIA

asehrawat@amity.edu

Department of Linguistics

Delhi University, Delhi

rcprof@yahoo.com

*Corresponding Author

Abstract: Metadiscourse assists readers in connecting, organising, interpreting, evaluating, and developing attitudes regarding the informative material. This paper explores the use of various metadiscourse features used by undergraduate and postgraduate students of Engineering and Management students to express their viewpoint and engage with readers. The findings of the study indicate that ESL writers focus more on expressing their ideas and ignore their responsibility to anticipate the readers' reaction, to inform them and engage them in the text.

Keywords: Metadiscourse, Connectives, Code glosses, Illocutionary markers, Narrators, Emphatics, Hedges, Attitude markers, Commentary

1. Introduction

Metadiscourse is the linguistic material meant to assist the reader in organising and understanding a text's propositional content and does not provide new knowledge (Crismore et al.,1993). Harris (1970) used the term metadiscourse to express the pragmatic relationship between the writer and the reader, and gained academician's attention when William in his book *Style: Ten Lessons in Clarity and Grace* explained this term as "writing about writing,

whatever does not refer to the subject matter being addressed." According to Vanda Kopple (1997), metadiscourse refers to the use of language by authors to aid readers in connecting, organizing, interpreting, evaluating, and forming attitudes towards the

9320

information presented, rather than simply expanding its referential content. Hyland (2005) refers to metadiscourse as "the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (speaker) to express a viewpoint and engage with readers as members of a particular community.".She, further, described it as the way "by which propositional content is made coherent, intelligible and persuasive" (Hyland, 2005).

Several classifications are proposed for metadiscourse markers in the last five decades (Williams, 1981; Vande Kopple, 1985; 1997; Crismore, 1984; Beauvais, 1989; Hyland, 2005). Metadiscourse markers are put into two categories: textual and interpersonal markers by these classifications (Dafouz-Milne, 2008). Textual Metadiscourse is internal to the discourse and ensures connectivity among paragraphs in a text. Textual markers that include Connectives, Code Glosses, Validity Markers and Narrators aids in the deployment of rhetorical tactics employed to represent a theory of experience coherently. Interpersonal markers includes Illocutionary markers, Narrators and Commentary impart attitude to propositional material and engages the writer in closer proximity and discussion with the reader (Toumi, 2009). Hyland (2005) proposed that all metadiscourse markers are interpersonal in nature.

Metadiscourse in rhetoric and persuasion has been the subject of several studies. Metadiscourse research and applications provide a subterranean understanding of how to achieve coherence in writings and equips the teacher with effective approaches of teaching and assessment to help the students who face difficulties in writing.

In writing, readers and writers engage in social and communicative exchanges. Metadiscourse is a mechanism writers employ to affect their readers. Rhetoric or persuasion can benefit from metadiscourse because of the following reasons: it helps connect concepts; it suggests the writer's authority and ability; and it shows consideration for the reader by accepting their viewpoint (Hyland, 2005). Careful employed metadiscourse markers helps writers in influencing the readers' understanding of the text and conveying the writers' attitude toward the context and reader. Metadiscourse's importance in persuasion has been demonstrated in numerous research (Hyland 1998, 1998a; Dafouz-Milne, 2008).

2. Literature Survey

Metadiscourse has been considered an essential element of a text to be perceived as coherent (Vande Kopple, 1985; Crismore & Farnsworth, 1990; Intraprawat & Steffensen, 1995; Crawford Camiciottoli, 2003; Hyland & Tse, 2004; Ädel, 2006; Abdi, Rizi & Tavakoli, 2010). Numerous studies investigated the concept of metadiscourse across

9321

various modes (oral and written), genres (academic, business, media, etc.) (Hyland, 2004), and cultures, indicating significant efforts in this area of research.

In his work, Hyland (2005) examines the utilization of metadiscourse resources by writers to communicate important information to their readers through the use of code glosses and frame markers. Additionally, she investigates how writers establish their credibility, authority, and persona while also engaging readers and considering their attitudes.

According to Sešek (2016), metadiscourse elements are frequently incorporated into additional chunks of text, as well as utilized to modify or restructure existing text. The utilization of metadiscourse is influenced by the genre and topic of the text and has critical importance in the text composition.

Abdi, Rizi and Tavakoli (2010) investigated research articles across various disciplines and quartile ranks to explore the variations in the use of metadiscourse markers. The findings suggested that cooperation categories such as quality, quantity, manner, and interaction were extensively employed by writers in the field of philosophy, providing valuable insights into the teaching, studying, and comprehension of this crucial aspect of language use. This empirical analysis of academic writing enables us to uncover concealed rhetorical features and enhance our interpretation of the text.

In their 1995 study, Whalen and Menard examined the composition of an argumentative text by second-year French undergraduate students in both their first language (English) and second language (French). The study showed that the writers' ability to engage in meaningful discourse processing at multiple levels, as well as their strategic knowledge, accounted for the limitations imposed by linguistic processing on the production of written discourse in their second language.

Sehrawat (2014) observed that there are quantitative changes in the use of metadiscourse in the writing of Indian students as they advance to higher grades. Gold Sanford (2012) and Intaraprawat and Steffenson (1995) have suggested that there is a positive relationship between the quality of a text and the proficient and effective use of metadiscourse. This indicates that the use of metadiscourse can enhance the overall quality of a text. Whalen and Menard's (1995) research suggest that the writing process of second language (L2) writers is a stronger predictor of the quality of their writing than their level of proficiency in the L2. In other words, even if an L2 writer's proficiency is not yet fully developed, they may still produce high-quality writing if they have a well-developed writing process. This highlights the importance of focusing on the writing process when teaching and evaluating L2 writing.

9322

Eur. Chem. Bull. 2023, 12(Special Issue 4), 9320-9332

3. Method

3.1 Objective

This study investigates how the use of metadiscourse features varies in expository texts produced by undergraduate and postgraduate students in the engineering and management fields, with the goal of determining the impact of disciplinary differences on writing skills.

3.2 Data Collection

Undergraduate and postgraduate students of engineering and management disciplines at six universities located in India's National Capital Region (NCR) were approached to compose a text on the theme of "Are we too dependent on smartphones and computers?" were collected from. Thirty minutes were given to write the texts. The participation in the study was voluntary and the participants were told about the purpose of the study and the usage of the collected data. 254 texts were collected from five universities.

3.3 Analysis of the Data

Since metadiscourse is characterized by its function rather than a formal category, a manual qualitative analysis was conducted. Hyland and Tse (2004) argued that identifying metadiscourse is not a straightforward process since it is an inclusive category that may incorporate new elements that are consistent with the writer's intention. Moreover, it is possible that the same linguistic elements may serve as metadiscourse in certain sections of the text but not in others. For our analysis, we adopted Hyland and Tse's (2004) three primary principles as a framework for identifying metadiscourse. These principles include the non-propositional nature of metadiscourse, its use in conveying writer-reader interactions, and its internal relationship to discourse. Vande Kopple's (1985, 1997) taxonomy-connectives, code glosses, illocutionary markers, narrators, emphatics, hedges, attitude markers, and commentary is used for analysis.

4. Empirical Results

The study explores the variation in the use of metadiscourse features in the expository text generated by undergraduate and postgraduate students of engineering and management domains to ascertain influence of discipline on writing skills. The quantitative difference in the use of connectives, code glosses, illocutionary markers, narrators, emphatics, hedges, attitude markers, and commentary to achieve coherence in spontaneous expository texts were identified through 't-test'. Initially, Students are compared within domain (UG and PG) and at domain level (Engineering and Management).

Firstly, the UG and PG sample texts of Engineering domain were compared to find out difference within the domain. The results are given below:

Table 1: Comparison of Metadiscourse used by UG and PG Engineering students

9323

Variables	Engineering UG		Engineering PG		t-ratio	P-value
	Mean	S.D.	Mean	S.D.		
Connectives	0.92	1.49	0.30	0.51	2.49	0.01
Code Glosses	0.79	1.03	0.25	0.49	3.00	0.00
Illocutionary Markers	0.17	0.45	0.17	0.44	0.04	0.96
Narrators	0.12	0.40	0.22	0.47	-0.96	0.33
Emphatics	0.82	0.72	0.72	0.87	-0.52	0.59
Hedges	3.61	1.54	1.30	1.39	6.97	0.00
Attitude Markers	0.20	0.46	0.10	0.30	1.18	0.24
Commentary	0.00	0.00	0.00	0.00	-	-

Table 1 shows that undergraduate and graduate engineering students use different quantities of connectives, code glosses, and hedges in their writing. No statistically significant differences in the use of illocutionary markers, narrators, emphatic words, or attitude words. The undergraduate engineering students used more connectives, code glosses, and hedges than postgraduate engineering students and both the groups did not use textual commentary.

Secondly, the UG and PG sample texts of management domain were compared to find out difference within the domain. The results are given below:

Table 2: Comparison of Metadiscourse used by UG and PG Management students

Variables	Management UG		Management PG		t-ratio	P-value
	Mean	S.D.	Mean	S.D.		
Connectives	0.58	0.71	0.50	0.89	0.38	0.70
Code Glosses	0.48	0.72	0.55	0.79	-0.44	0.66
Illocutionary Markers	0.29	0.46	0.15	0.36	1.55	0.12
Narrators	0.06	0.24	0.15	0.44	-1.01	0.31
Emphatics	1.12	0.76	0.93	0.52	1.44	0.15
Hedges	2.96	1.81	2.08	1.24	2.71	0.00
Attitude Markers	0.09	0.39	0.00	0.00	1.88	0.06
Commentary	0.00	0.00	0.00	0.00	NA	NA

Table 2 reflects a statistically significant difference between undergraduate and graduate management students in the use of hedges, but no difference in the use of connectives, code glosses, illocutionary markers, narrators, emphatics, or attitude markers. Neither of the two groups relied on exegetical analysis.

First-year management majors were the most likely to employ a hedge, while graduate students were less likely to do so.

9324

In the following step, we compared UG texts in the fields of engineering and management. Here are the findings:

Table 3: Comparison of Metadiscourse used by UG students of Engineering and Management

Variables	Engineering		Management		t-ratio	P-value
	Mean	S.D.	Mean	S.D.		
Connectives	0.92	1.49	0.58	0.72	1.17	0.12
Code Glosses	0.79	1.03	0.48	0.72	1.42	0.08
Illocutionary Markers	0.18	0.45	0.29	0.46	-1.01	0.15
Narrators	0.13	0.40	0.06	0.25	0.76	0.22
Emphatics	0.82	0.72	1.13	0.76	-1.73	0.04
Hedges	3.62	1.54	2.97	1.81	1.60	0.05
Attitude Markers	0.21	0.46	0.10	0.39	1.02	0.15
Commentary	0.00	0.00	0.00	0.00	-	-

Table 3 indicates a statistically significant difference between engineering and management students' reliance on emphatic and hedging devices, but no difference between the two groups in their use of connectives, code glosses, illocutionary markers, narrators, and attitude markers. Neither of the two groups relied on use of textual commentary.

Engineering undergraduates used more hedges and management undergraduates relied more on emphatics.

After that the PG texts of engineering and management domains were compared. The results are given below:

Table 4: Comparison of Metadiscourse used by PG students of Engineering and Management

Variables	Engineering PG		Management PG		t-ratio	P-value
	Mean	S.D.	Mean	S.D.		
Connectives	0.30	0.68	0.50	0.89	-1.24	0.21
Code Glosses	0.57	0.63	0.55	0.79	0.10	0.91
Illocutionary Markers	0.37	0.58	0.15	0.36	2.33	0.02
Narrators	0.37	0.74	0.15	0.44	1.86	0.06
Emphatics	0.97	0.69	0.93	0.52	0.34	0.72
Hedges	2.65	1.29	2.08	1.24	2.17	0.03
Attitude Markers	0.07	0.34	0.00	0.00	1.65	0.10
Commentary	0.05	0.31	0.00	0.00	1.21	0.22

9325

Table 4 highlights a statistically significant difference between engineering and management postgraduates in the use of illocutionary markers and hedges, but no difference in the use of connectives, code glosses, narrators, emphatics, attitude markers, or commentary.

Engineering postgraduates used more illocutionary markers and hedges than management postgraduates. Management students did not use commentary in their texts.

Finally, UG and PG texts of each domain were put together and domain group were created, then these two groups were compared. The results are given below:

Table 5: Comparison of Metadiscourse used by Engineering and Management students

Variables	Engineering		Management		t-ratio	P-value
	Mean	S.D.	Mean	S.D.		
Connectives	0.60	1.19	0.53	0.83	0.47	0.63
Code Glosses	0.68	0.85	0.53	0.76	1.20	0.23
Illocutionary Markers	0.27	0.52	0.20	0.40	1.09	0.27
Narrators	0.25	0.60	0.12	0.39	1.68	0.09
Emphatics	0.89	0.70	1.00	0.61	-0.99	0.32
Hedges	3.12	1.49	2.38	1.51	3.17	0.00
Attitude Markers	0.13	0.41	0.03	0.23	2.07	0.04
Commentary	0.02	0.22	0.00	0.00	1.06	0.28

Table 5 highlights a statistically significant difference in the use of hedges and attitude markers between engineering and management texts, but no difference in the use of connectives, code glosses, illocutionary markers, narrators, or emphatic words. Neither of the two groups relied on the use of textual commentary.

Engineering students employed more hedges and attitude markers in their texts than management students.

Qualitative analysis was done to understand the difference in the use of metadiscourse features in these texts after getting mixed results in quantitative analysis. The students of both streams have used metadiscourse to comment on their texts as text and did not try to interact with the imagined reader.

Metadiscourse enables authors to interact with their audiences and readers in a growing debate. Additionally, when authors thoroughly comprehend the significance and rhetorical purpose of metadiscourse markers, they are able to spot inconsistencies in their evolving

9326

text and improve its intelligibility. Thus, metadiscourse improves a text's readability and raises the likelihood that the message will be understood.

Connectives store information on the organisation of the text and the relationships between its various components. These lead readers and viewers through our text and aid in helping them create accurate mental images of them. Three subcategories make up this category: Adverbs, adverbial phrases, and coordinators are examples of connectors (however, in the first place, and, first, next, and fourth).

[1] Yes, we are getting too much dependent on smartphones and computers for everything like reading news, listening to music and watching movies *and* we are dependent on them for not only personal use but in professional life as well for sending emails, video calls etc. *However*, we can improve this situation by following methods:
1. Instead of using social media, we go to parks
2. Use real books instead of soft copies.
3. Give more time on reading books rather than surfing on web as books are more reliable than the Internet.
The solution is thus *first of all*, realising the need to correct this overuse, and *secondly*, working on self-discipline so as to have time to seek the little pleasures of life away from the screens in your hand or home.
Reminders that draw attention to preceding textual statements (earlier we discussed or as mentioned above)

[2] Yes, I believe we are too dependent on smartphones and computers. Our life revolves around the two of them. But also, it is a personal choice to limit the use of both of the *above*. As the use has both positives and negatives depending on how the individual uses it.

Topicalizers signify the introduction of a new topic. The most used topicalizers are 'as for,' 'in regard to,' 'in connection with,' 'as the statement mentions' and 'speaking of.'

[3] *As the statement mentions* "Are we too dependent on smartphones and computers." Yes, we are very much dependent on smartphones and computers.

Code glosses assist readers in understanding texts' intended meanings. Most often, these forms are employed with technical vocabulary or terminilogy that the author assumes the reader would not be familiar with. Forms like 'other terms' or 'X' indicates to readers that a definition of the term or concept just introduced is forthcoming. Repeatedly used code glosses in these texts include 'so termed,' 'what some people call,' 'strictly speaking,' 'I'll put it this way,' etc.

9327

[4] From our alarm to the calculator, everything is in a smartphone. As a result (IM), we are losing out on our mental abilities, *Example*: We can't even solve a simple math problem, or we don't even try to. Our memory has become so weak.

[5] *For instance*, when given free time you pick your gadget anytime and every time, even when you could have spent the time with family or friends, gone for a walk or simply spent the time with self in introspection. This sort of excessive dependence is on the rise with easy access to internet - with its boons and banes, and social media applications like Netflix and Amazon Prime in your phone.

Illocutionary markers are tools that let us communicate the precise actions we are taking at a certain point in a text. Illocutionary markers are used to degrade the text's information so that it is more suitable for the target audience. Frequently used illocutionary markers in these texts are 'we assert that,' 'I hypothesis that,' 'to conclude,' 'to sum up,' 'in short' and 'I pledge to.'

[6] We depend on cell phones and computers not only for speedy work but also for social media *so* reducing the use of social media will relatively reduce the use of smartphones and computers.

[7] We can take part in outdoor activities, socialize more and develop the habit of reading. *In short*, we can do other activities which reduces the time that we spend on smartphones and computers. Nowadays, small kids are also addicted to it which *ultimately* causes poor eyesight.

Validity markers demonstrate the author's belief in the veracity of the propositional content. These characteristics reveal the authors' sincerity and desire to develop an ethical literature that authentically reflects their beliefs, knowledge, and assumptions. They raise the level of acceptability by giving the reader more freedom to interpret the text and construct a model of its contents. There are two significant subcategories within it:

Emphatics confirms the author's conviction in the subject matter. These commonly used emphatics in these texts are unquestionably, undoubtedly, it is apparent that, certainly, without a doubt, assuredly, it is evident that, I would emphasise that, and believe me.

[8] Artificial Intelligence was supposed to help people. *Undoubtedly*, humans are becoming lazy because of this.

[9] It is *true* that people have become too dependent on cell phones. In as much as they have improved the quality of life, they (it) have also become an epidemic in the modern society.

[10] *Without a doubt*, People prefer smartphones over wrist watches, smartphones over reading books.

[11] *Yes*, these devices are reliable, *yes*, they are convenient and *yes*, they simplify life.

Conversely, **hedges** give writers the opportunity to communicate their doubts regarding the truth value of the propositional content by allowing them to use words like 'may,' 'probably,' 'it is likely/unlikely that,' 'seem,' 'appear,' 'perhaps,' 'to our knowledge,' 'at this early level of research,' 'to some extent,' etc.

[12] In metro cities, nobody *can* memorize the routes. They are dependent on google maps. For transportation, we *need* Uber and Ola.

[13] Computers are tools, and you are *unlikely* to be too dependent on tools.

Narrators inform the reader about source of the information, or the authorities being quoted by narrators. In these text narrators like I believe, I think that, supposedly, according to the reliable sources, the government agency suggests that, or Ramesh says that it sounds like, it looks like, etc.

[14] Yes, I *believe* we are too dependent on smartphones and computers. Our life revolves around the two of them.

[15] Make *Stephen Covey's* time management matrix.

[16] Yes, I am *a technical person*, in my field, as much as I know all person are dependent on smartphones and computers.

[17] *According to me*, yes, we are very much dependent on smartphones and computers.

Attitude markers enable authors to express their affective reactions to the text's substance. Expressions like I find it very interesting that, I regret, I joy, shockingly, it is upsetting that, or it is a very good idea, I want that, fortunately, I am worried that, it is concerning to mention, etc., are used to express their attitude.

[18] *I agree* that some people create a kind of OCD or just simply use this technology to kill the boredom, but this shouldn't overshadow the immense advantages that we have from it.

Commentary are used either anticipate the reader's reaction to the text or use rhetorical questions to elicit a particular response from the reader (you may find it alarming that). Expressions like 'dear friends,' 'concerned people,' 'some of you will be shocked that,' 'would you mind,' etc. to address the reader are used by the writes.

[19] *We* can pass our free time by reading books or doing some subjective work. *Thank You*!

[20] Instead of ban on use of phones in the colleges why don't *you* change the Indian education system? "Are we too dependent on smartphones and computers?" And the answer is yes.

9329

Eur. Chem. Bull. 2023, 12(Special Issue 4), 9320-9332

In these texts, the metadiscourse primarily used for Defining (In layman's terms, simply put),Introducing Topic (the major concern, another important concern, another aspect of), Saying (put into words, Formulate, In simple words, in other words, to put it simply), Focusing (one thing that, important thing to remember is**,** the evidence shows/suggests that, it is apparent that, it is clear that), Concluding (to sum up, to conclude, in nutshell, one can conclude), Reminding (to remind, as said/discussed above), Adding (additionally, moreover, furthermore, after that, subsequently, in addition, later, afterwards, eventually), Arguing (claim that, on the other hand), and Contextualizing (in this situation/scenario, in present era/time). Out of these categories Defining, Introducing Topic, and Saying specifically deal with the topic and the rest display the organization of the text and writer's textual action. The writer-reader interaction appealing to the reader (we must keep our mind open, we should analyse our options), aligning perspectives (if we consider/compare, we can/will), anticipating the reader's reaction (you would agree/disagree, you would be surprised), imagining scenarios (If you imagine, if you consider), and hypothesizing about the readers (you must have heard/read/observed) is evident in some postgraduate engineering texts and are not evident in the management texts.

5. Summary and Conclusion

The undergraduate engineering students used more connectives, code glosses, and hedges than postgraduate engineering students and both the groups did not use textual commentary. First-year management students were the most likely to employ a hedge, while graduate students were less likely to do so. Quantitative changes in the use of metadiscourse in their writing as they advance to higher grades (Sehrawat, 2014).
Engineering undergraduates used more hedges and management undergraduates relied more on emphatics. Engineering postgraduates used more illocutionary markers and hedges and management students did not use commentary in their texts. Engineering students employed more hedges and attitude markers in their texts than management students. It suggests that field of study has an influence on students' writing (Abdi, Rizi and Tavakoli, 2010).

In these text, students of both groups have relied more on textual markers and very less use of interactional markers. It highlights that students are aware of the need to connect different parts of a text but they underestimate the need to interact with the audience and keep them informed.

To teach university students how to write persuasive essays that involve presenting arguments, discussing pros and cons, and taking a polemical stance, it is crucial to provide them with numerous argumentative texts as examples and starting points for their own

9330

writing. It is also important to avoid using excessively personal essays as models. When ESL writers wrote at home as opposed to when they wrote in a classroom setting their rhetorical competency was 50% higher (Kroll,1990). It is suggested that take-home essays may offer distinct advantages over in-class essays, therefore, students should be motivated to take writing assignment at home.

It is important to emphasize that determining the appropriate amount of metadiscourse or writer/reader visibility to incorporate in writing is not always straightforward, and necessitates more explicit attention in the ESL classroom. Writing well requires an understanding of language conventions, which are an integral part of becoming a proficient communicator.

The provision of authentic and relevant texts to students is a promising approach to raising their awareness (Gavioli, 2005). Structured classroom discussions of these issues, taking into account genre and cultural factors, are likely to lead to writing that is more natural, efficient, and effective.

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9331

Eur. Chem. Bull. 2023, 12(Special Issue 4), 9320-9332

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9332

Eur. Chem. Bull. 2023, 12(Special Issue 4), 9320-9332