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The Metadiscourse Analysis in Abstracts of Multidisciplinary Sciences Journal Articles: Hedges vs Boosters

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Abstract

In academic writing, authors must separate opinion from facts and assess their arguments suitably and convincingly, the expressing of uncertainty and certainty is critical. This research investigates the usage of hedges and boosters in research articles from three disciplines: engineering, social science, and midwifery. This study carries three issues: what are the language forms of hedges and boosters in abstracts of journal articles of multi-disciplinary science at Tulungagung University, how often hedges and boosters are used and how their meaning reflects the writer's level of assurance in the information given. The research design used in this study is descriptive-qualitative. The data taken were from in the past five years (from 2017 to 2022) as its primary sources of data. The researcher used random sampling and took ten articles of each science. There were thirty papers contributed by the lecturers who submitted their journal articles to the Tulungagung University repository (https://repository.unita.ac.id/). This study concluded that abstracts of journal articles in midwifery science were the highest among the other sciences. The second most used of hedges was also found in engineering sciences and the lowest usage was from social science. This finding is not relevant to (Vázquez Orta & Giner, 2008) conclusion that Hedging is more common in disciplines driven by socially manufactured, abstract data and less often in fields driven by real data. The findings of this study generally validated Salager- Meyer's assertion that it is crucial and extremely important to be able to navigate scientific language. In contrary, the highest booster frequencies were found in social science, and then the second was in midwifery science. The lowest was in engineering science. It appears that the boosters are being used to convey a high level of confidence in the conclusions that can be drawn from the outcomes of the study that was carried out. In other instances, the boosters appear to serve as rhetorical devices that are designed to express the author's view as if it were self-evident or as if it were a commonly acknowledged thought or truth. In social science which the author writes more argumentatively, boosters were needed to convey their ideas or opinions much more.

Keywords: hedges, boosters, articles, journals, metadiscourse

1. Introduction

Academic writing is one of a writer's means of communicating with a reader who is interested in and convinced by his or her arguments. Writing for academic purposes, such as journal articles, is also the author's interpretation as he or she composes the text. Thus, the writer's background might influence the way they write. They write in a variety of ways, depending on their academic or disciplinary backgrounds. Academic writing also expands the variety of metadiscourse markers and their functions. The writer's attitude toward the reader is a representation of the metadiscourse impact, and it has an impact on the writer's writing activity.

A writer can make the text's substance easier for the reader to understand by using hedges and boosters, both of which are parts of metadiscourse. (Crismore) is the author of the definition of the term "metadiscourse," which he defined as "language material in speech or writing that does not add to the content of sentence information but is used to help listeners or readers organize, interpret, and evaluate the information contained in the text." Metadiscourse can take place either verbally or in written form.

Communication strategies like hedges and boosters are used to change the impact of remarks. They convey both epistemic and affective substance in academic speech. In other words, they communicate the writer's attitude toward the audience as well as their level of belief in a claim's veracity. While academic research emphasizes the value of hedging (Hyland, 1998).

Hedges are defined as words that are purposefully used to create ambiguity in the interpretation of other terms. Lakoff as cited in (Liu, 2020) is credited as being the first person to introduce the notion of hedges in his thesis titled "Hedges: a study in meaning criteria and the logic of fuzzy concepts". Yule (1996) as cited in (Mulatsih, 2008) a second researcher in linguistics, is likewise interested in the study of hedges. He considers hedging to be a kind of conversational implication, which may reveal the unstated meaning of statements made by individuals when they converse with one another. The use of hedging not only reveals a writer's level of self-assurance in the face of a statement, but it also reveals an author's perspective on the listener (Hyland, 1998). Hedging is a kind of politeness strategy that is used to communicate respect for different points of view and to tone down comments to provide an opportunity for readers to have their own interpretations of what was being said (Cabanes, 2007).

Boosters, which may also be referred to as Emphatics or Intensifiers, have a meaning that is opposed to that of hedges. According to(Salager-Meyer, 1994) the word "boosters" refers to those lexical elements that enable the writer to demonstrate a high level of confidence in an assertion. (Hyland, 1998) who views boosters as a tactic that seeks to strengthen the assertion to show the writer's commitment, supports this definition. Using boosters helps a writer convey conviction and confidently support a claim, which helps them make a strong generalization about the state of things. Some examples of boosters are "clearly, obviously, and of course". Affectively, they are a show of connection and solidarity with an audience, putting emphasis on the information that is given, membership in a group, and direct contact with readers.

As a part of the sociolinguistics and applied linguistics field of study, particularly in English academic writing, this study would be able to theoretically make the reader more aware of the use of hedges and boosters across different disciplinary as a component of the field of study. In addition to this, it will be able to provide some information how Indonesian people demonstrate their position in the authoring of the description area of a research report, especially academic writing. It was expected that the findings of this investigation would be useful for future research. It is intended that it may serve as a useful source or reference for scholars who are interested in doing a research project on the issue of metadiscourse markers, particularly concerning hedges and boosters.

The ability to communicate uncertainty and certainty is critical in academic writing, as authors must discern between opinion and fact and evaluate their arguments in acceptable and persuasive ways. Hedges and boosters are two ways used to do this. This illustrates that some writers lack an understanding of English rhetoric, making them irrelevant to the situation and fundamental hedge and booster functions. Consequently, this study was carried out to look into a few concerns: what verb tenses are used as hedges and boosters in the abstracts of multidisciplinary journal articles at Tulungagung University, In terms of frequency and how their meaning reveals the writer's level of assurance in the information conveyed, there is no discernible difference between the usage of hedges and boosters.

2. Literature Review

It has been discovered that research on hedges and boosters is commonly conducted in social fields of study such as politics and business. This is because these discourse markers play the function of indirect language in the process of conveying the message that someone intends to convey.

(Vázquez Orta & Giner, 2008) examined how hedging techniques were used in research articles from the mechanical engineering, biology, and marketing domains. Hedging consequently happened most frequently in marketing to the many types of data used in the various academic disciplines. Since the data used in marketing research is more socially generated and abstract than the data used in biology and mechanical engineering research, marketing made more use of hedging.

According to Salager-Meyer (1997) (as cited in Salichah et al., 2015), claims that hedges are danger minimization tactics, which includes the use of politeness acts to reduce potential threats. These methods deal with the unpredictability of information and include strategies of politeness that are used in social interactions and negotiations between speakers and hearers. The taxonomy of hedges was created by Salager Meyer in 1994 and consists of modal auxiliary verbs, modal lexical verbs, adjectival, adverbial, and nominal modal phrases, approximators of degree, amount, frequency, and time, introduction phrases, and compound hedges. The words included are as follows:

Table 1. Taxonomy of Hedges by Salager-Meyer

No.	Category	Words
1.	Modal auxiliary verbs	may; might; can; could; would; should; will
2.	Modal lexical verbs	to believe; to seem; to appear; to assume; to suggest; to tend; to think; to estimate; to argue; to indicate; to propose; to speculate
3.	Adjective, adverbial, and nominal modal phrases	(adjective: possible; probable; maybe; un/likely) (adverb: perhaps; possibly; probably; practically; likely; presumably; virtually; apparently) (noun: assumption; possibility; claim; estimate; suggestion)
4.	Approximators of degree, quantity, frequency, and time	approximately; roughly; about; often; occasionally; generally; usually; somewhat; somehow; a lot of
5.	Introductory phrases	I belive; to our knowledge; it is our view that we feel that
6.	If-clauses	if; if true; if anything
7.	Compound hedges	it would appear; it seems reasonable; it may suggest

(Hyland, 2005) provides a current list of boosters in his book "Metadiscourse," which is in line with hedges. Hyland's classification of boosters was the basis for compiling this list:

Table 2. Taxonomy of Booster by Hyland

No	Category	Words
1.	Universal and negative pronoun	all, each, every- pronominal (everybody, everyone, (everything), every, none, no one, nothing.
2.	Amplifiers	absolutely, a lot (+comparative adjective), altogether, always, amazingly, awfully, badly, by all means, completely, definitely, deeply, downright, forever, enormously, entirely, even (+adjective/noun), ever, extremely, far (+comparative adjective), far from it, fully, greatly, highly, hugely, in all/every respect(s)/way(s), much(+adjective), never, not half bad, positively, perfectly, severely, so(+adjective/verb), sharply, strongly, too (+adjective), terribly, totally, unbelievably, very, very much, well.
3.	Emphatics	a lot (+noun/adjective), certain(-ly), clear (-ly), complete, definite, exact(-ly), extreme, for sure, great, indeed, no way, outright, pure(-ly), real(-ly), such a(+noun), strong, sure(-ly), total.

3. Method

The current study examined how abstracts of journal articles of multidisciplinary sciences used hedges and boosters based on text or document analysis. The study's research design was a mixed-methods one. Gather, evaluate, and combine quantitative and qualitative data in a single study to gain an understanding of the research question.

This study used the hedges and boosters discovered in the abstracts of journal articles authored by lecturers from three different majors which are from midwifery, engineering, and social sciences at Tulungagung University in the past five years (from 2017 to 2022) as its primary sources of data. The researcher use random sampling and took ten articles of each science; ten articles of social science, ten articles of engineering science, and ten other articles of midwifery science. There were thirty papers contributed by the lecturers who submitted their journal articles to the Tulungagung University repository (*https://repository.unita.ac.id/).* As a result, the total number of articles in the data set was thirty articles which consist of ten from midwifery science, 10 from engineering science, and ten from social science. These articles served as the corpus for this study. These articles are downloaded in PDF format, from which they can be simply extracted as plain text. As soon as the researchers got the data, they copied them to their computer. To do the concordance analysis, the researcher had to convert all of the PDF files to TXT files.

The first step to do is by choosing words that were divided into a variety of hedging and boosting categories. By employing a wordlist function, researchers were able to determine how frequently a word appeared in the text. The tools displayed a list of all terms in the corpus and its amount. This method was used to identify the most frequently occurring terms in a corpus. Finally, researchers discovered that hedges and boosters appear often in paragraph structure. This application displays the text contained within individual files. Last but not least, the researcher formed some conclusions about hedges and boosters based on the facts that were presented in the study papers.

4. Findings and Discussion

Referring to the frequency of hedges and boosters found in the abstracts of journal articles, the table below displays the calculated results. It demonstrates that hedges were 62.5% higher than boosters' 37.5%.

Table 3. The total frequency of hedges and boosters

Category	Frequency	Percentage
Hedges	75 words	62.5%
Boosters	45 words	37.5%
Total	**120 words**	**100%**

To convey a cautious attitude toward the arguments being presented, all of these examples use hedges, which could be a strategy used by authors to "gain acceptance for their work." (Hyland, 1998) since hedges provide the writer the chance to remove the remark at a later date. Furthermore, it implies that the author is open to debate or even to being shown incorrect. Because it is impossible to be 100% scientifically certain about anything, it diminishes the human responsibility that comes with making a statement.

Academic discourse must separate truth from opinion, and statements must be offered conditionally rather than assertively. This highlights the fundamental relevance of this distinction. Hedges and boosters were classified in the corpus for this study. The findings of this study reveals the frequency of hedges and boosters used in the multidisciplinary sciences, such as midwifery, engineering, and social sciences. The table below shows the differences in its usage:

Table 4. The use of hedges in multidisciplinary sciences

Field	Frequency	Percentage
Midwifery	38 words	50.67%
Engineering	19 words	25.33%
Social	18 words	24%
Total	**75 words**	**100%**

From the table above we can conclude that abstracts of journal articles in midwifery science were the highest among the other sciences. The second most used of hedges was also found in engineering sciences and the lowest usage was from social science. This finding is not relevant to (Vázquez Orta & Giner, 2008) conclusion that Hedging is more common in disciplines driven by socially manufactured, abstract data and less often in fields driven by real data. The findings of this study generally validated Salager- Meyer's assertion that it is crucial and extremely important to be able to navigate scientific language. She also explored some educational implications of her research, such as its application to the medical area. Hedges are claimed to play a key part in the medical field by allowing writers to express personal opinions based on what appears to be plausible justification.

Table 5. The use of boosters in multidisciplinary sciences

Field	Frequency	Percentage
Midwifery	15 words	33.33%
Engineering	14 words	31%
Social	16 words	35.57%
Total	**45 words**	**100%**

Table 5 shows that the highest booster frequencies were found in social science, and then the second was from midwifery science. The lowest was in engineering science. It appears that the boosters are being used to convey a high level of confidence in the conclusions that can be drawn from the outcomes of the study that was carried out. In other instances, the boosters appear to serve as rhetorical devices that are designed to express the author's view as if it were self-evident or as if it were a commonly acknowledged thought or truth. In social science which the author writes more argumentatively, boosters were needed to convey their ideas or opinions much more.

There appears to be no significant difference in the frequency or number of linguistic hedges and boosters used in scientific articles (Hardjanto, 2016). To defend three things, namely the proposition, the writer, and the reader, the writer uses the form of hedges and boosters.

5. Hedges and Boosters in Midwifery Science

In the abstract of journal articles, the researcher found that hedges are more used than boosters. The data implies that 71.69% is dominated by hedges while the other 28.31% is boosters' part.

Table 6. The use of hedges and boosters in midwifery science abstracts

Category	Frequency	Percentage
Hedges	38 words	71.69%
Boosters	15 words	28.31%
Total	**53 words**	**100%**

The types of hedges which were found in the corpus of midwifery science consisted of five categories, which are: modal auxiliary verbs; modal lexical verbs; adjective, adverbial, and nominal modal phrases; approximators of degree, quantity, frequency, and time; If-clauses.

Table 7. Hedges found in midwifery science abstracts

Kinds of hedges	Frequency	Percentage	Words
Modal Auxiliary Verbs	12	31.57%	can
Modal Lexical Verbs	5	13.15%	suggest, indicate
Adjective, Adverbial, and Nominal Modal Phrases	4	10.52%	likely, possibility, suggestion
Approximators of Degree, Quantity, Frequency, and Time	13	34.21%	
Introductory phrases	-	-	
If-clauses	4	10.52%	if
Compound hedges	-	-	
Total	**38**	**100%**	

The highest hedges type occur in this study was Approximators of Degree, Quantity, Frequency, and Time with "about" variant appearing the most with 34.21% of the total. The second highest was Modal Auxiliary Verbs with 31.57%. The less number that occurred was Modal Lexical Verbs with 13.15%. While the least type of hedges used is Adjective, Adverbial, and Nominal Modal Phrases and If-clauses which is 10.52%. Here is an example of the use of hedges found in the midwifery abstract:

Excerpt 1: …a strategic approach considering various economic classes of society **can** be applied in developing countries…

Excerpt 2: Based on the perception of pregnant women to public services and services ANC **indicates** that the services provided by health personnel are in conformity with standards…

Excerpt 3: …tendency of parents to be more **likely** to receive the vaccine for themselves than their child…

Excerpt 4: …a barometer of health services in a country, **if** the rate is still high, it means that health services in the country are categorized not good.

The data shows us that the word "about" is generally used to express doubt or uncertainty in writing abstracts among midwifery lecturers. Wiboonwachara & Rungrojsuwan (2020) in (Triyoko et al., 2021) claimed that the

quality, degree, frequency, and duration "adaptors or rounders" imply a lack of confidence in the author's dedication to his concept.

The categorization of boosters in midwifery abstracts of journal articles was classified into three categories: universal and negative pronoun; amplifiers; emphatics.

Table 8. Boosters found in midwifery science abstracts

Kinds of Boosters	Frequency	Percentage	Words
Universal and Negative Pronoun	5	33.33%	all
Amplifiers	9	60%	very, well
Emphatics	1	6.67%	great
Total	**15**	**100%**	

Table 8 show that the occurance of booster frequency varied. The most highly frequent boosters occurred is amplifiers with the words “very” and “well”. Universal and negative pronouns with the word "all" are in second place, while the emphatic kind, which only appears once in the word "great," is in last place. The examples can be seen below:

Excerpt 1: …are all traditional birth attendants in the village health center spring working area…

Excerpt 2: Belief/habit costs society in terms of the ability of the behavioral health service utilization is still very low.

Excerpt 3: …reproductive diseases in plus more married women then the risk of contracting the disease from the partner will be greater against reproductive disease.

Boosters are used to convey confidence and conviction in the speaker's message. Academic writing has given boosters minimal attention, yet their importance in fostering a sense of connection among participants has long been recognized. Though the writers took some parts in portraying their strong arguments to stand by using boosters “all, very, well, and great”, the other different kinds of boosters have not been touched yet. This number indicated that midwifery lecturers tend to be less certain in giving their position in writing research reports as it is seen that the number of boosters was half of the number of hedges.

Hedges and Boosters in Engineering Science

The frequency of hedges and boosters was calculated as 57.57% for hedges and 42.43% for boosters used in the engineering science abstracts of journal articles. These numbers were divided into nineteen words occurance of hedges and fourteen words found in boosters.

Table 9. The use of hedges and boosters in engineering science

Category	Frequency	Percentage
Hedges	19 words	57.57%
Boosters	14 words	42.43%
Total	**33 words**	**100%**

Hyland (1998) also found that hedges and boosters were more common in scientific and engineering publications. According to him, this is because "modal verbs tend to minimize person making the judgment" in the hard sciences. Related to Hyland’s theory that the number of hedges found in engineering science abstract was dominated by modal auxiliary verbs with 78.95%, while approximators of degree, quantity, frequency, and time were 15.85% and the least number with 5.2% is adjective, adverbial, and nominal modal phrases kind of hedges. The detailed data can be found in the table below:

Table 10. Hedges found in engineering science abstracts

Kinds of hedges	Frequency	Percentage	Words
Modal Auxiliary Verbs	15	78.95%	will, can
Modal Lexical Verbs	-	-	
Adjective, Adverbial, and Nominal Modal Phrases	1	5.2%	possible
Approximators of Degree, Quantity, Frequency, and Time	3	15.85%	often, usually
Introductory phrases	-	-	
If-clauses	-	-	
Compound hedges	-	-	
Total	**19**	**100%**	

The sample of hedges used in the engineering science abstract is as follows:

Excerpt 1: This also affects the number of iterations and the number of assignments, so the more iterations the results **will** be closer to the optimal value.

Excerpt 2: This period of time is long enough so that it is **possible** to accelerate.

Excerpts 3: The benchmark for project success is **usually** seen from the time taken optimally with optimum cost without leaving the quality of the work.

The categorization of boosters in this study was divided into three groups: universal pronouns, which refer to a general authorship and include words like “each and every”; amplifiers, which function to increase the size or effect of statements; and emphatics, which have the purpose of highlighting the writer's conviction in their message.

Table 11. Boosters found in engineering science abstracts

Kinds of Boosters	Frequency	Percentage	Words
Universal and Negative Pronoun	3	21.43%	each, every
Amplifiers	8	57.14%	so, very, well
Emphatics	3	21.43%	great, such
Total	**14**	**100%**	

It is clearly shown in table 11 that “amplifiers” appeared as the most frequent boosters with 57.14%. And then, universal and negative pronoun and emphatics follows with the same number 21.43%. The words found for booster usage are as follows:

Excerpt 1: From each combination, productivity and equipment rental costs for the use of heavy equipment will be calculated.

Excerpt 2: …reduce the effects of global warming, and has a very high tensile strength that can be competed with steel.

Excerpt 3: This is the same as the optimization process which seeks the optimal solution based on the objective function, namely minimizing the project duration which greatly affects project management.

According to Quirke et al. (1985) as cited in (Farrokhi & Emami, 2008), Amplifiers are used to increase the lexical intensity scale of a gradable adjective or verb. Additionally, intensifiers, exaggeration, and overstatement are all literary functions performed by amplifiers. In academic writing in English, exaggerations are frequently indicated through the employment of amplifiers.

Hedges and Boosters in Social Science

The overall frequency variations of hedges and booster markers are found merely in the same number. Table 12 below presented the percentage of hedges (52.94%) and boosters (47.06%) that just deviates from two words to one another.

Table 12. The use of hedges and boosters in social science

Category	Frequency	Percentage
Hedges	18 words	52.94%
Boosters	16 words	47.06%
Total	**34 words**	**100%**

As social science abstracts were the least used hedges and the most used hedges among all at the same time, it indicates that the lecturers of the social science area were confident enough to claim their assertions towards their writing rather than soften the impact of what they have composed on their abstracts.

Table 13. Hedges found in social science abstracts

Kinds of hedges	Frequency	Percentage	Words
Modal Auxiliary Verbs	16	88.89%	can, could, should, will
Modal Lexical Verbs	-	-	
Adjective, Adverbial, and Nominal Modal Phrases	-	-	
Approximators of Degree, Quantity, Frequency, and Time	2	11.11%	often, a lot of
Introductory phrases	-	-	
If-clauses	-	-	
Compound hedges	-	-	
Total	**18**	**100%**	

Only two hedge types, modal auxiliary verbs (88.89%) and approximators of degree, amount, frequency, and time (11.11%), could be discovered in the social sciences abstracts as a whole. The modal auxiliary verbs were "can, could, should, and will," among other words. The approximators of degree, quantity, frequency, and time, on the other hand, only use the terms "often and a lot of." Those words can be found in following sentence:

Excerpt 1: This **could** mean that the elements of the question or sample above has a poor response in order to fulfill obligations Land and Building Tax.

Excerpt 2: Actually there are many more agricultural products in the village itself that can be used without having to spend **a lot of** money.

Excerpt 3: Therefore, youth **can** actually start a small business, namely by selling bananas.

Table 14. Boosters found in social science abstracts

Kinds of Boosters	Frequency	Percentage	Words
Universal and Negative Pronoun	3	18.75%	all, each
Amplifiers	9	56.25%	definitely, ever, very, well
Emphatics	4	25%	great, such
Total	**16**	**100%**	

The frequency of boosters found in social science abstracts was the highest among all three sciences. It has sixteen words in total, with the amplifiers as the highest rank (56.25%) followed by emphatics which have the number 25%. And the lowest kind used was universal and negative pronoun in 18.75%. The variants of words are also the most among all the boosters ever found in other sciences, such as the amplifiers has “definitely, ever, very, well” as their words. The emphatics have the words “great and such”, while universal and negative pronoun have “all and each”. The words used as boosters in the sentences below:

Excerpt 1: All aspects have been destroyed in this recession. Starting the economic, social, cultural, resilience, health, tourism, industry and massive impact of the virus outbreak.

Excerpt 2: …impact of the virus outbreak this is proof that the ability of each country's governments to get a tough test…

Excerpt 3: Modern society will definitely have addiction and dependence on the internet.

It can be said that the writers' purpose of boosters is to communicate the writer's objectives with surety and conviction. Boosters are viewed as playing a significant role in establishing conversational togetherness amongst participants, while receiving little attention in academic writing, especially in journal articles.

The more modal hedges the authors used, the lower the likelihood of resistance, the more accurate their results reporting, and the more polite they were. Hedging also gives authors the ability to minimize their appearance in their writing, emphasizing the tentativeness of the ideas they are putting forth. So it can be said that the authors prefer to maintain their anonymity while expressing their viewpoint. When lecturers were confident that their claims shared some sort of universal understanding and wanted to gain the readers' approval, they also included a lot of boosters in their writing, though not as many as hedges.

6. Conclusion

This study helps to enrich the comprehension of hedges and boosters' trends in multidiscipline sciences. The inclusion of three disciplines for comparison is a significant addition to this study. The data demonstrate extensive variations of hedges and boosters that occur across disciplines, both in terms of frequency and function. These differences can be linked to the distinctive characteristics of many fields of other studies.

The various functions that each of a research article's rhetorical sections performs might be used to explain the variance within them. When we look at the frequency of occurrence of boosters and hedges separately, the first thing that jumps out at us is that the frequency of hedges is noticeably higher than the frequency of boosters in all three sciences. This may be an indication that the authors of academic texts (regardless of whether the audience is expert or non-expert) prefer to open up the possibilities of alternative positions; providing a wider prospect for readers' positions in the text. It seems like all academic texts do the same thing, which is to give readers more options for where they can stand in the text and lower the certainty of claims.

When a text seems to exaggerate its claims to make them more convincing, the use of boosters can give the impression that it is exaggerated and overblown. Exaggeration and overstatement of universal pronouns are both good ways to show how strong the writer's convictions are and how obvious the facts are.

In short term, according to this study's findings, the frequency difference between the usage of hedges and boosters found in three various sciences is statistically significant.

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