VARIATIONS IN RHETORICAL MOVES AND METADISCOURSE ELEMENTS IN CONFERENCE ABSTRACTS: A GENRE ANALYSIS

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Abstract:

An abstract represents the summary of a piece of writing. Genre and metadiscourse analytical studies could highlight move variations in abstracts. The study aimed to investigate variations in the academic conference abstracts of the hard and soft sciences with a focus on rhetorical structure/sequence and the use of hedges/boosters. A corpus of sixty (60) abstracts was used for the study; this comprised 30 abstracts each from the soft sciences and the hard sciences. The abstracts were selected from two conference proceedings. The framework of rhetorical moves for abstracts comprising introduction (I), purpose (P), method (M), product (Pr), and the conclusion was used for the analysis of the rhetorical sequence of the abstracts. The abstracts were further analysed for their use of boosters and hedges. From the results, 43.3% of hard sciences abstracts (HSA) and 33.3% of soft science abstracts (SSA) followed the framework used. Furthermore, purpose, method, product, and conclusion were obligatory moves whereas the introduction move was optional in the SSA. On the other hand, only method and product moves were obligatory with the rest being conventional in SSA. The most dominant move sequence for HSA was I-P-M-Pr-C (46.7%) followed by I-M-Pr-C (17%) and I-P-M-Pr (17%) whereas P-M-Pr-C (43.3%) was the most dominant sequence followed by I-P-M-Pr-C (33.3%) for the SSA. The hard sciences abstracts and the soft sciences abstracts do not show marked differences in the authors' use of boosters and hedges. Pedagogical implications of the findings of this study are useful particularly for academic conference applicants,

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academic writing instruction as well as advancing genre and metadiscourse research in conference abstracts.

Keywords: genre, academic conference proceedings, hedges, boosters, rhetorical move structure

1. Introduction

"Genre" is described as a type of discourse intended to achieve a distinct communicative purpose (Swales & Feak, 2009). Genres such as business meetings, courtroom proceedings, medical checkups, conference proceedings, theses and research publications constitute vital media for the dissemination of information for varying purposes with their uniqueness and similarities. The study of genres has received tremendous attention from scholars lately (El-Dakhs, 2018a).

Within genres are sub-classifications of rhetorical units called 'moves'. The term 'move' as employed in spoken or written genres refers to rhetorical or discoursal elements that perform an important communicative function (Swales, 2004). According to El-Dakhs (2018a), moves are mostly examined for their status as obligatory or optional to a particular genre. Owing to the critical nature of moves to rhetorical structure, many research frameworks on rhetorical moves have been designed for various genres. Some of these include moves for job application letters (Bhatia, 1993), moves of research articles (Alamri, 2020) as well as different aspects of research articles comprising introductions (Dong & Lu, 2020; Bunton, 2002; Samraj, 2005; Swales, 1990), literature review (Kwan, 2006) methodology (Cotos *et al.*, 2017) and conclusion (Bunton, 2005). Hyland (2000), Swales (2004), Santos (1996) and Pho (2008) focused on the rhetorical moves of research article abstracts.

Among all written genres, the abstract has been considered extremely important as it epitomizes the content of research articles, dissertations, conference presentations, and other genres (Hyland, 2000). Abstracts constitute the first portion of academic writing that readers use to judge the relevance and importance of the article or presentation (Hongwei & Yuying, 2011). Abstracts reflect the writer's academic credibility and acceptability in a discourse community (Sidek, *et al.*, 2016).

Further, according to Wang and Zhang (2016), abstracts are forms of discourse. Discouse could be further divided into basic discourse and metadiscourse. Basic discourse refers to the subject matter being discussed and metadiscourse originally used by Harris (1959) refers to the writers' point of language used to draw a link among the writer, the receiver, and the text. Hyland (2000) categorized metadiscourse into interactive and interactional metadiscourse. Interactive metadiscourse illustrates the writer's awareness of readers in organizing discourse whereas interactional metadiscourse emphasizes the writers' interaction with readers and aims at involving readers in the argument and help the writer to express his or her attitude towards the text

and readers. Interactional metadiscourse elements comprise hedges and boosters, among other markers (Hyland & Tse, 2004).

It is important to state that academic conferences constitute an important category of genre which gives researchers the opportunity to disseminate their findings to an academic community. Here, researchers receive feedback from their work instantly. Again, industry players and policy-makers obtain first-hand information from researchers. In such conferences, the quality of an abstract in most cases solely determines its inclusion or exclusion in a conference presentation (Sidek *et al.*, 2016).

This study, therefore, examines variations in rhetorical moves and the use of metadiscourse elements in conference abstracts of the soft and hard sciences. The study is significant because it will help conference article writers to make informed judgements on the appropriate use of metadiscourse and rhetorical move sequences in their respective disciplines to enhance the communicative purpose of their abstracts.

2. Literature review

2.1 Earlier studies on rhetorical moves in abstracts

Genre analyses of research article, theses and conference proceedings abstracts has attracted the attention of researchers in recent times (Elena, 2017; Can, *et al.*, 2016; Lorés, 2004; Pho, 2008; Suntara & Usaha, 2013, Sidek *et al.*, 2016, Ninpanit, 2017; Qi & Pan, 2020).

One of the ground-breaking studies on rhetorical move analysis of abstracts was done by Hyland (2000). Hyland's (2000) model specifies five basic moves for abstracts: (1) introduction, (2) purpose, (3) method, (4) product, and (5) conclusion. This was based on the traditional introduction, method, results, and discussion (IMRD) model. Before Hyland's (2000) model, Swales' (1990) model had come out with the 'Create a Research Space' (CARS) model which was originally developed for the introductory section of research articles.

The CARS model was later modified by Swales (2004) for it to be used for abstracts. With Swales' model much more suitable for persuasive abstracts and Hyland's model suitable for informative abstracts, Loan *et al.* (2014) used the two models separately to analyse either type of abstract. However, Santos (1996) developed a new model and used it to analyse abstracts of research articles in linguistics for both persuasive and informative abstracts. With the simplicity and effectiveness of Santos' (1996) model in analysing all types of abstracts, Gillaerts (2013) updated this by adding sub-moves. This was used to analyse research article abstracts from a diachronic perspective.

Following these models, several studies have been conducted on research articles and dissertations abstracts. For instance, El-Dakhs, (2018b) conducted a comparative genre analysis of research article abstracts in more and less prestigious journals. Many other recent studies have focused on rhetorical moves variations between soft science and hard science abstracts. For instance, Omidia and his colleagues (2018) investigated disciplinary variations in research articles on the use of multi-word elements in each of the five rhetorical moves identified by Santos (1996) and Pho (2008) which are

Introduction, Purpose, Methods, Results, and Conclusion. Findings from their study indicated that authors of soft sciences and hard sciences research articles and abstracts place priorities on different rhetorical move items. That is, whereas authors from the soft sciences place much emphasis on their theoretical implications and research objectives, authors in hard sciences prefer to highlight their methodology as their distinctive selling point for their articles. Moreover, it is well noted that soft sciences abstracts exhibit more lenient approaches to interpretation since the outcomes could be understood in diverse ways while hard sciences abstracts utilize a stringent structure in presenting research findings (Lazoglo, 2017). Again, Martin (2003) points out that though abstracts in the social sciences generally follow the structural moves, there is a likelihood to omit the Results section.

Gani *et al.* (2021) analysed abstracts of Mathematics and English using the Five Move Analysis by Hyland (2000). The study indicated that despite differences in the disciplines, both abstracts utilized all the moves in Hylands (2000) framework but the percentage of the moves used in the abstracts was different. Behnam and Golpour (2014) studied research abstracts in Linguistics and Mathematics and performed cross-disciplinary and cross-linguistic analyses on them. The results of the study revealed that linguistics abstracts follow a conventional scheme, but mathematics abstracts do not exhibit the usual norms in terms of moves. Similarly, the study by Juanda and Kurniawan (2020) showed that abstracts from the Social Science and Natural Science employed different strategies in realizing the rhetorical moves. Alotaibi (2020) investigated the thematic structure of research article abstracts published in soft science and hard science disciplines from the perspectives of textual, topical, and interpersonal themes. The results showed that the unmarked topical themes were the most prevalent types in the abstracts, while the interpersonal themes were the least frequent. Concerning the textual themes, the results revealed some disciplinary variations. The computer science abstracts relied heavily on conjunctive adjuncts while Applied Linguistics abstracts made a sort of balance between the conjunctions and conjunctive adjuncts (Alotaibi, 2020).

Although variations in rhetorical moves have been considered in the abstracts of soft and hard science research articles, that cannot be said of conference abstracts in the soft sciences and hard sciences. Most of the studies that reported on abstracts of conference proceedings focused on rhetorical moves in the abstracts from one discipline (Loan, *et al.*, 2014; Sidek, *et al.*, 2016). For instance, Sidek *et al.* (2016) purposively sampled 23 abstracts of empirical-based studies from a selected conference in the field of language and education. Their findings showed that the majority of the abstracts only partially contained the rhetorical moves as suggested by Hyland (2000) with a variety of moves sequence. Lazoglou (2017), on the other hand, established some rhetorical move variations in Greek and English conference abstracts.

A pilot study that compared rhetorical moves in hard and soft sciences abstracts used only one conference proceeding from which the two sub-corpora comprising fourteen articles each were generated (Ninpanit, 2017). He found that abstracts in education (soft science discipline) perceived the introductory move as optional whereas

those in the hard sciences perceived the introductory move as a conventional move. The limitation of such a study was that it could not bring out clear differences and similarities between the two sciences since the authors submitted their abstracts to the same conference. As such, a study that considered two different conferences representing the soft sciences and the hard sciences is worth considering. Again, Ninpanit's study used only one subject area (Education) to represent soft sciences and used the health sciences to represent hard sciences. It must however be noted that definitions for soft sciences and hard sciences go beyond education and health. All these emphasize that there is a paucity of scientific research in terms of investigating variations in the abstracts of the soft and hard sciences in conference proceedings, hence the need for the current study.

2.2 Earlier studies on metadiscourse elements (hedges and boosters) in abstracts

Authors of research articles or conference abstracts rely not only on strong arguments or novel findings to convince their readers, but also on linguistic markers, such as metadiscourse, to assert a position on an issue, engage readers, and avoid objections to their interpretations which contribute to the strengthening of the credibility of their writing (Ngai & Singh, 2020). Among the few metadiscourse studies conducted on research article abstracts include the research by Gillaerts and de Velde (2010) who explored interactional metadiscourse in research article abstracts. They observed that during the last three decades before their study, interactional metadiscourse parameters, particularly hedges and boosters, had undergone interesting changes. They found that even though hedges, boosters, and attitude markers achieve some degree of interpersonality, the interactional domain was depleting. Again, some crucial differences were observed between the subcategories of hedges, boosters, and attitude markers.

In another report, research article abstracts were examined to determine if there were differences in hedging and boosting strategies among Applied Linguistics articles in English and Chinese-language journals, as well as academic authors, publishing both empirical and non-empirical study articles (Hu & Cao 2011). It was realized from their study that research article abstracts in English-medium Applied Linguistics journals include more hedges than Chinese and English abstracts in Chinese-medium journals. Also, there were no significant differences in the use of hedges in abstracts of empirical and non-empirical research articles. However, abstracts of empirical articles were found to contain more boosters than abstracts of non-empirical research articles. In another study, Ngai and Singh (2020) investigated the relationship between persuasive metadiscourse devices in research article abstracts and their attention on social media. It was found that metadiscourse was positively correlated with Altmetric Attention Score (AAS). The authors additionally observed that metadiscourse markers varied by discipline in abstracts with high AAS, which influenced each discipline's convention. The use of both interactive and interactional metadiscourse strategies was therefore shown to make abstracts more attention-worthy. Again, metadiscourse variations have also been explored in theses abstracts of undergraduate students (Hadi *et al*. 2020). It was realized

from their study that students made use of several interactive metadiscourse makers to enhance the persuasiveness of their abstracts.

One of the few studies in the academic literature that examined metadiscourse analysis of conference abstracts is Agathopoulou (2009). His finding revealed that there is more significant use of hedging in high-rated (accepted) rather than low-rated (rejected) conference abstracts. Agathopoulou observed that the discrepancy in the use of hedges and boosters between the two subcorpora (accepted and rejected conference abstracts) may be an important determinant in the selection of successful conference abstracts. Another study on metadiscourse analysis in conference abstracts was conducted by Uysal (2014). He found that native English and Indian authors employed hedging significantly less than their Turkish and Japanese counterparts which suggest the use of metadiscourse may be culturally dependent. These few studies conducted on conference abstracts are not enough to provide a comprehensive understanding of the use of metadiscourse in conference abstracts. Although other researches on hedging and boosters in recent times exist (Afreh *et al.*, 2017; Salar & Behzad, 2016; Ariannejad *et al.*, 2019; Zali *et al.*, 2020), there are but a few studies that deal with the subject in conference abstracts. One can hardly find studies that deal with the use of hedges and boosters in hard sciences and soft sciences conference abstracts, hence the need for the current study. The current study addresses the variations between hard science conference abstracts and soft science conference abstracts in the use of hedges and boosters.

3. Research questions

1) What are the differences in rhetorical moves between conference abstracts in the soft sciences and the hard sciences?
2) What are the variations in the use of hedges and boosters in conference abstracts of the soft sciences and the hard sciences?

4. Materials and Methods

4.1 Selection of the corpus
The corpus studied in this research was drawn from the Fourth International Postgraduate Conference (FIPC) and the Convention of Biomedical Research (CoBReG) books of abstracts for the 2018 conference. The two conferences' books of abstracts were purposively selected because the CoBReG book of abstracts predominantly contained several laboratory-based experimental studies that could be classified as hard sciences. The FIPC was also purposively selected as it predominantly contained abstracts that could be classified as soft sciences. Also, both conferences were held within a similar period in the same year with about two-month intervals. Time was considered because earlier research indicated that the writing skills of people within a particular community change with time (Can *et al.*, 2016). Furthermore, both conferences were held within a

similar geographical location (i.e. Ghana) with most of the participants coming from Ghana.

In all, 43 abstracts were published in the book of abstracts for the postgraduate conference book of abstracts comprising research from the soft science disciplines. From this number, a subcorpora of 30 abstracts on empirical studies was compiled which included Education Studies (15), Business Studies (5), Sociology (1) Population Studies (3), and Economics (6). For CoBReG, 93 abstracts were published in the book of abstracts which contained abstracts from the hard sciences. From this number, a subcorpora comprising 30 abstracts were purposively selected comprising Microbiology/parasitology (12), Pharmacology/Toxicology (10), Chemical Pathology/Pathology (8), and Anatomy (1). These abstracts were purposively selected for the analysis, taking into consideration the observation that the extent to which textual structures are uniform in academic writing depends on how the disciplines are related (Gnutzmann & Oldenburg, 1991).

The purposive sampling technique was used to select only abstracts of empirical studies to be sure that theoretical and conceptual papers were excluded. This is in line with Hyland's (2000) assertion that abstracts of empirical studies show more explicit and relevant rhetorical moves compared to those of theoretical and conceptual papers.

The average number of words per the selected abstract was 211±8 and 268±9 respectively for soft sciences and hard sciences as presented in Table 1. The average number of authors per abstract was four in both conferences.

Table 1: Description of subcorpora

Abstract	Total number of words in a subcorpora	% of words in a subcorpora	Average number of words per abstract
Soft Sciences	6336	44.1	211±8
Hard Sciences	8042	55.9	268±9
Total	**14378**	**100**	

Note: Average number of words per abstract has been presented as mean ± standard deviation

4.2 Data analysis procedure (rhetorical moves analysis)

Hyland's (2000) five-move classification of rhetorical moves (introduction, purpose, method, product, and conclusion) was used to analyse the move structure of the data. This was chosen ahead of other established models such as Bhatia's (1993) four moves and Santos' (1996) five moves classifications. Suntara and Usaha (2013) argue that Bhatia's model has only four moves and sentences that fall into the introduction move are not captured by the model. Though Santos' model has five moves, he used 94 abstracts in the field of Applied Linguistics. Hyland used a larger sample (800 abstracts) from a broader category of eight disciplines including applied linguistics, physics, biology, sociology philosophy, marketing, electrical and mechanical engineering, unlike Santos' model which focused only on Applied Linguistics. This makes it the most reliable model to analyse abstracts from the soft and hard science disciplines.

Identification of the various moves was done manually by the first author and another researcher. The researchers carefully read the abstracts one after the other and indicated whether there was the presence of a move or an absence of a move. The 30 abstracts of the hard sciences were numbered as HSA from HSA1 to HSA30 and the 30 abstracts of the soft sciences were numbered SSA from SSA1 to SSA30. After the sorting activity, the number of moves under each of Hyland's 5 moves classifications was counted, analysed and as simple frequencies and percentages.

4.3 Inter-rater reliability

To obtain an accurate classification of rhetorical units in the data set an earlier method was used (Croucher & Cronn-Mills, 2015). Here, the researcher (first author) went over the process of sorting and classification three times. Another communication skills expert was also asked to re-classify the rhetorical units of the same data set. Of the sixty abstracts, fifty-eight of them were classified without any discrepancy, hence inter-rater reliability was calculated to be 96.7%. The differences identified were analysed again and rectified until there were no more conflicting results.

4.4 Classification of moves

Moves were categorized into three types according to their frequency (Biber *et al.*, 2007) as obligatory (≥90%), conventional (≥60% but less than 90%), and optional (<60%). This is in contrast with the types of frequency adopted by Swales (1990), Bhatia (1993), and Afful (2005), who categorized all moves from 50% upwards as obligatory moves and those below 50% as optional moves. The classification adopted by Biber *et al.* (2007) was used for this study because of its robust nature and that Ninpanit (2017) used it to analyse abstracts of conference proceedings. This afforded easy comparisons with previous studies.

4.5 Rhetorical move structure

To determine the rhetorical move variations in the abstracts, Hyland's (2000) rhetorical move framework of 5 move structure comprising introduction (I), purpose (P), method (M), product (Pr), and conclusion (C) was adopted. According to Hyland (2000), the introduction (I) move establishes the context of the paper and the motives for the research or the discussion. The purpose (P) move indicates the aim, thesis or hypothesis and points out the intention behind the paper. The method (M) move provides information on the design, procedures, assumption, approach and data analysis of the study. The product (Pr) move outlines the main findings or results, the argument, or what was accomplished in the research. Lastly, the conclusion (C) move interprets or extends the results beyond the scope of the paper, draws inferences, points to applications or wider implications. Content analysis was used to identify, code, and analyse the various moves in each of the abstracts.

4.6 Metadiscourse analysis

To identify variations in the use of metadiscourse elements between the soft sciences and the hard sciences, Hyland's (2005) list of interactional markers were utilized for the analysis of the abstracts. Here, the focus was on the use of hedges and boosters in the selected conference abstracts. Hyland cites a total number of 101 lexical items and phrases which are used as hedges, and 64 used as boosters. Each of the lexical items was identified in the abstracts using Microsoft word search. The hit words/phrases that appeared were contextually analysed to ensure they were employed as hedges or boosters by two researchers independently. No discrepancy was found which corresponded with an inter-rater reliability of 100%. The identified hedges and boosters were then presented in a tabular form as simple frequencies.

5. Results

Results presented in Table 2 show the frequencies of rhetorical moves in soft and hard sciences. It was found that 50% of SSA and 80% of HSA included the introduction move. Also, 93.3% of SSA and 83.3% HSA included the purpose move. The method move was the only move that recorded 100% occurrence in both SSA and HSA. The product move recorded 93.3% and 100% in SSA and HSA respectively. In the conclusion move, the HSA had 93.30% whereas SSA had 80%.

When all the abstracts were put together, the introduction, purpose, and conclusion moves occurred in 65, 88.3 and 86.7% of the total abstracts respectively. They were therefore categorized as conventional moves. The method and the results moves occurred in 100 and 96.7% of the entire abstracts and were categorized as obligatory moves.

**Table 2:** Frequencies and percentages of rhetorical moves in soft and hard sciences

Moves	Soft Sciences			Hard Sciences			Total (Hard + Soft)		
	F	%	Category	F	(%)	Category	F	%	Category
Introduction	15	50.0	Opt	24	80.0	Con	39	65.0	Con
Purpose	28	93.3	Obl	25	83.3	Con	53	88.3	Con
Method	30	100.0	Obl	30	100.0	Obl	60	100.0	Obl
Product	28	93.3	Obl	30	100.0	Obl	58	96.7	Obl
Conclusion	28	93.3	Obl	24	80.0	Con	52	86.7	Con

Key: f=frequency, Opt=Optional, Con=Conventional, Obl=Obligatory

5.1 Textual space

Textual space involves the amount of space a move occupies with regard to the number of words in that move and is presented graphically as shown in Figure 1.

Figure 1: Percentage word composition of rhetorical moves in the soft and hard sciences
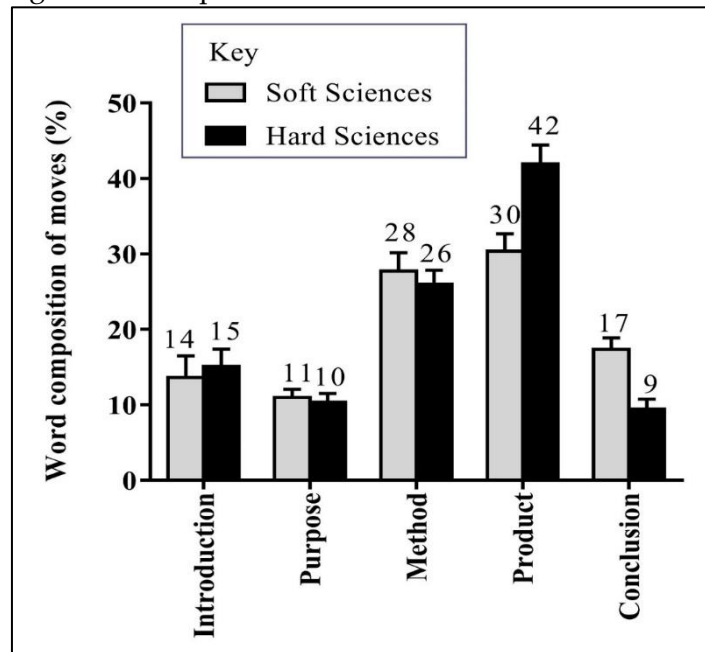
As presented in Figure 1, the highest textual space with an average of 42% was allocated to the product move in the hard sciences abstracts. This was followed by the method, introduction, purpose, and conclusion move which occupied an average of 28%, 15%, 11%, and 9% respectively. Similarly, the most predominant move type that occupied the highest textual space was the product move which was allocated an average of 30%. This was followed by method, conclusion, introduction, and purpose. It could also be realized that the product and introduction moves occupied more textual space in the hard sciences than in the abstracts of the soft sciences.

5.2 Rhetorical moves sequences

Table 3 and Figure 2 show that the most frequent rhetorical move sequence in the soft sciences was P-M-Pr-C which occurred in 13 out of the 30 abstracts representing 43.3%. This was followed by I-P-M-Pr-C which occurred in about 33.3% (10 out of 30) of the abstracts of the soft science.

In the SSA, on the other hand, the most frequent rhetorical move structure was I-P-M-Pr-C which occurred in almost half (14 out 30) of the abstracts representing 46.7%. This was followed by I-M-Pr-C and I-P-M-Pr with each occurring in 17% of the hard sciences abstracts. Putting the entire soft and hard sciences abstracts together, it was found that the dominant move sequence was the I-P-M-Pr-C which occurred in 40% of the abstracts. This was followed by P-M-Pr-C which occurred in 28% of the 60 abstracts.

Table 3: Frequency of rhetorical move sequences in soft sciences and hard sciences

No.	Move Sequence	Soft Sciences		Hard Sciences		Total (Soft + Hard)	
		Frequency	%	Frequency	%	Frequency	%
1	I-P-M-Pr-C	10	33.3	14	46.7	24	40.0
2	P-M-Pr-C	13	43.3	4	13.3	17	28.3
3	I-P-M-C	2	6.7	-	-	2	3.3
4	I-M-Pr-C	2	6.7	5	17	7	11.7
5	I-P-M-Pr	1	3.3	5	17	6	10.0
6	M-Pr-C	1	3.3	-	-	1	1.7
7	M-Pr	1	3.3	-	-	1	1.7
8	P-M-Pr	-	-	2	6.7	2	3.3
	Total	**30**	**100**	**30**	**100**	**60**	**100**

Figure 2: Frequency of move sequences in soft and hard sciences
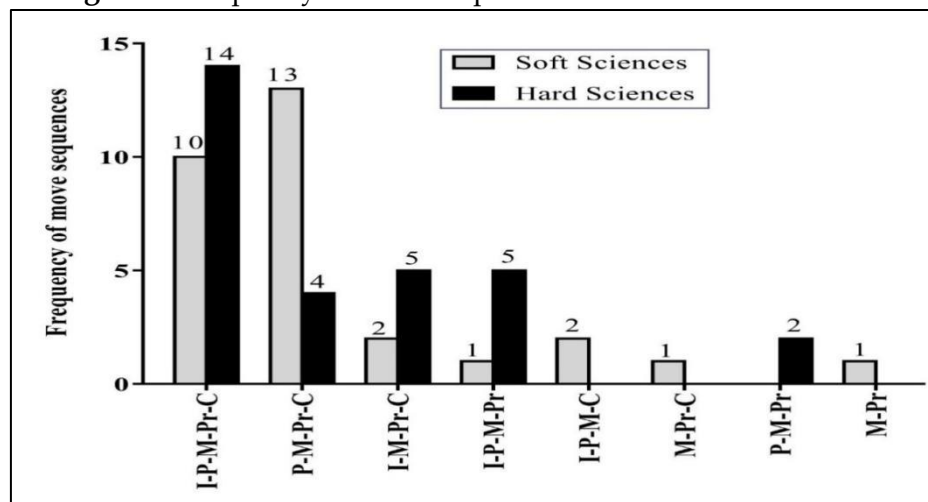
5.3 Metadiscourse results

5.3.1 Hedges

As shown in Table 4, analysis of hedges as metadiscourse elements using Hyland's 101 lexical items and phrases (Hyland, 2005), revealed that in the hard sciences, 'should' appeared 22 times as a hedging element. In total, 69 hedging elements were found in the abstracts of soft science.

On the other hand, in the hard sciences, it was realized that the hedging element, 'suggest, suggests or suggested' appeared 10 times which was the highest. In all, 58 hedging elements were found in the hard sciences.

Table 4: Frequency of hedges in soft sciences and hard sciences

	Soft Sciences		Hard Sciences	
	Hedge	Frequency	Hedge	Frequency
1	Should	22	Should	1
2	Suggested/suggests/suggest	11	Suggest/suggests/suggested	10
3	Indicate/indicated/indicates	6	Indicate	3
4	Could	5	Could	3
5	Often	5	Often	1

6	Largely	3	Largely	1
7	Would	3	Would	2
8	Almost	1	Almost	3
9	May	2	May/Might	8
10	About	1	About	2
11	Claim	1	Claim	1
12	Estimate	1	Estimated	2
13	Relatively	1	Relatively	6
14	Seems	1	Seemingly	2
15	From the perspective	1	Quite	1
16	Likely	1	Possibly/ Possible	4
17	Mainly	2	Mostly	1
18	Usually	1	Tended to	1
19	Argue	1	In most	1
20			Essential	1
21			Generally	2
22			Approximately	1
23			Apparent	1
	Total:	**69**	**Total:**	**58**

5.3.2 Boosters

Analysing the boosters in the abstracts using Hyland's list of 64 boosters in the soft sciences, it was discovered that the word, 'found' appeared 11 times which was the highest. In total, there were 33 booster elements found in the soft sciences.

On the other hand, in the domain of the hard sciences, the booster elements such as 'show', 'showed' and 'shown' appeared 15 times and it was found to be the highest. In total, 37 boosters were recorded in the hard sciences (Table 5).

Table 5: Frequency of boosters in soft sciences and hard sciences

	Soft Sciences		Hard Sciences	
	Booster	**Frequency**	**Booster**	**Frequency**
1	Show/showed/shown	8	Show/showed/shown	15
2	Found	11	Found	7
3	Established	3	Established	1
4	Must	3	Must	2
5	Evident/evidence/evidently	2	Evidence/evident	3
6	Indeed	1	Indeed	1
7	Realized	1	Known	5
8	Clear/Clearly	3	Demonstrated	1
9	Always	1	Believed	1
	Total	**33**	**Total**	**37**

6. Discussion

6.1 Rhetorical move structure variations in soft sciences and hard sciences abstracts

The results from the study (Figures 1 and 2 and Tables 2 and 3) show that although the abstracts from both SSA and HSA showed some similarities, they also showed some minimal variations. To begin with, only 33% abstracts in the SSA and 47% of HSA (a combined total of 40%) included all five moves which shows some divergence from Hyland's findings. However, because all but one abstract (97%) in the soft sciences and two (93%) in the hard sciences (for a combined total of 95%) included at least four of the moves, it seems there is actually a good bit of consistency between abstracts for RAs and conference proceedings. The introduction was clearly the least consistent move in the soft sciences (50%) and the hard sciences (80%) with the lowest combined occurrence of all moves (65%), with all others being obligatory. This shows alignment with Hyland's findings, as that means that every move is at least conventional in conference abstracts, if not obligatory (Figure 2 and Table 4).

From the results, the introduction move occurred in only 50% of the abstracts of the soft sciences but in 80% of the hard science abstracts. This suggests it was an optional move (<60%) in soft sciences but a conventional move in hard sciences abstracts (>60% but less than 90%). This agrees with an earlier report by Suntara and Ushala (2013) who found that the introductory move is an optional move in soft sciences. The results also agree with the findings of Ninpanit (2017) who reported that conference abstracts in education (soft science discipline) perceive the introductory move as optional whereas those in health (predominantly hard sciences disciplines) perceived the introductory move as a conventional move.

With respect to the purpose move, over 93% of soft science abstracts included it whereas 83% of hard science abstracts incorporated it. This means it was obligatory (>90%) to move in the soft sciences but conventional (>60% but less than 90%) in the hard science abstracts investigated in this study. The findings deviate from an earlier related study in conference abstracts conducted by Sidek *et al.* (2016) who found that only 27.1% of authors included the purpose move. This means the purpose move was optional. Though this finding does not confirm that of Sidek *et al.*, it strongly agrees with the results obtained by Ninpanit (2017) who found that the purpose move was obligatory in both education and health science abstracts published in conference proceedings. It could therefore be inferred that though the purpose move is very essential in conference proceeding abstracts, variation should be expected across fields and that generalizations cannot be made from a limited sample.

On the method move, the results from the study indicate that all abstracts in both the soft and the hard sciences included it in their abstracts. The method move is therefore obligatory (>90) in both soft science and hard science abstracts used in the study This agrees with the results obtained by both Sidek *et al.* (2016) and Ninpanit (2017). This is simply the case because all these studies examined only empirical studies but not theoretical/conceptual research abstracts. As argued by Hyland (2000), empirical studies

fall in line with his model because they constitute original empirical research which usually includes the methods used. Can *et al*. (2016) found that Applied Linguistics abstracts place more emphasis on methods. This is confirmed by the findings of this study, as 96% of the fifty abstracts studied included the description of the method move. The method move is therefore an important move in empirical studies. All the abstracts analysed in this study included the method move.

The results of the present study also revealed that the product move was recorded in representing 93.3% of the soft science abstracts and 100% of the hard science abstracts used in the current study. It could therefore be concluded that the product move is obligatory in both disciplines (>90%) despite the fact that it was higher in the hard sciences (100%) than the soft sciences (93%). The findings strongly agree with that of Sidek *et al*. (2016) who also found that 97% of conference soft science abstracts included the product move hence making it an obligatory move. These findings were not different from those obtained by Ninpanit (2017) who conducted similar research in conference abstracts. Ninpanit also found that the product move is obligatory in both education and health sciences abstracts.

Another important finding from this research is that the conclusion move was included in 93% of the soft sciences and 80% of the hard science abstracts which formed the corpus of the study. This means the conclusion move can be classified as obligatory in soft sciences but conventional in the hard science abstracts. The results deviated slightly from those obtained by Sidek *et al*. (2016) in that they obtained 78% inclusion in their conference abstracts analysed. With this, the conclusion move was conventional similar to that obtained for soft sciences but comes short of the obligatory classification (80%) obtained for hard sciences. Again, a striking deviation from the results of the study was the one obtained by Ninpanit (2017). In his report, the conclusion move was found to be missing in the education abstracts but conventionally applied in the health science abstracts. This is another indication that moves may vary by field.

6.2 Variations in textual space in the abstracts of the soft sciences and the hard sciences

As intimated by Afful (2005), the significance of a rhetorical move is determined by the textual space apportioned to it. This simply means that authors intentionally allocate higher numbers of texts or words to particular move types that are of importance to them. From the results obtained in the present study, the highest textual space of 42% was allocated to the product move in the hard sciences. This was followed by the method (28%), introduction (15%), purpose (10%) and, conclusion (9%) moves. Similarly, the most predominant move type that occupied the highest textual space in the soft science abstracts was the product move which was allocated an average of 30% of textual space. This was followed closely by the method (28%) conclusion (17%), introduction (14%) and purpose (11%) moves. It could be realized that the move types in hard sciences that occupied more space than hard sciences were the product and introductory moves. The implications of the findings is that the abstracts of both the hard sciences and the soft sciences place more emphasis on the product move and the method move.

The results show that limited textual space was devoted to the conclusion move in the hard science abstracts whereas the purpose move received limited textual space in the abstracts of the soft sciences. It is worth mentioning that Omidia *et al.* (2018) have found that authors in the soft sciences promote their research by highlighting their research objectives as well as possible theoretical implications of their research. On the other hand, authors in the hard sciences highlight their methods section as a distinctive 'selling point' for their research. These findings did not come out clearly in the current research as the results and method were both given prominence in both hard science and soft science abstracts. The reasons behind these observations in the current study cannot be explained by only the findings of the study because the individual participants were not interviewed. It will be interesting to consider probing the participants for the reasons behind their choice of moves in subsequent studies.

6.3 Rhetorical move sequences in the abstracts of soft sciences and hard sciences

From the results of the current study, it was evident that the most common rhetorical move sequence in the soft sciences was P-M-Pr-C 43.3% of the abstracts. In the hard science abstracts, the most familiar rhetorical move sequence was I-P-M-Pr-C which occurred in 46.7% of the abstracts. However, when the entire abstracts from both sciences were put together, the most dominant move sequence was I-P-M-Pr-C which occurred in 40% of the abstracts.

In Sidek's (2016) study of conference abstracts, the most prominent move pattern was P-M-Pr-C (42.1%). Coincidently, the abstracts used by Sidek *et al.* (2016) were also from the soft sciences. Therefore, the findings in the soft sciences in the present study agree with that of Sedek (2016). The results agree with the findings from Suntara and Ushala (2013). However, this was not the case when it came to the hard science abstracts as the I-P-M-Pr-C move type was among the least used (13.3%). This indicates that there were variations in rhetorical move sequences between the two fields with respect to their rhetorical move sequence.

The results of the present study do not also corroborate Ninpanit's (2017) study which reported that the majority of the authors (93.86%) in the soft science domain employed the P-M-Pr sequence and omitted the introduction and the conclusion moves. The reason assigned to this observation was that the background information (introduction) and the conclusion were not always critical for understanding of an abstract. The findings deviate from the results obtained for soft sciences abstracts analysed in this present study where the most dominant move pattern was P-M-Pr-C. Interestingly, the most preferred sequence in education conference proceeding abstract according to Ninpanit's (2017) study did not occur at all in the soft science abstracts of this present study but rather twice (representing 6.7%) in the hard science abstracts. With respect to the CP abstracts in the health (hard) sciences, P-M-Pr-C (57.14%) was found to be the most preferred sequence followed by I-P-M-Pr-C with 21.43% occurrence. A similar observation was made in research article abstracts (Omidia *et al.*, 2018; Suntara & Ushala, 2013).

6.4 The use of hedges and boosters as elements of metadiscourse

An analysis of the metadiscoursal elements using Hyland's (2005) 101 lexical items and phrases as hedges revealed that more hedges were used in the soft sciences (69) compared to 58 used in the hard science abstracts. As presented in Table 5, the most common hedge item in the hard sciences was 'should' which appeared 22 times in hard science abstracts but only once in the soft sciences abstracts. Examples of sentences that employed 'should' as a hedge include:

*"Therefore, it is recommended that, the IEPA **should** intensify its collaborative efforts with the Ministry of Education especially the Ghana Education Service towards its continual provision of the needed education and training aimed at improving planning, leadership and management capabilities of personnel in the education sector."* (SSA 4)

*"Therefore, knowing the public health consequences and zoonotic implications of this organism, government through relevant agencies **should** promulgate relevant and enforceable laws or regulations that will discourage and/or prevent this unwholesome practice in the abattoir."* (HSA 7)

Then, 'suggest', 'suggested', and 'suggests' were the most prevalent hedge used in the abstracts of both types of sciences; hard science abstracts (10) as against (11) by soft science abstracts. Examples of sentences in both science fields that employed the use of 'suggest, suggested or suggests' as a hedge include:

*"The finding **suggests** that the training and certification graduates received from IEPA, to a large extent, remains relevant to their job placement."* (SSA 4)

*"The results **suggest** that the use of A. indica, T. glaucescens and P. guajava might prevent oral infections, and encourage the continued use of the A. indica as chewing stick in many traditions across Africa."* (HSA 17)

The use of 'suggest(s)' in the above sentences gives an indication that the authors were not too certain about the implications of their findings. They, therefore, avoided the use of boosters such as clearly, show, certain, evident among others in reporting their findings.

On the use of boosters, the hard science abstracts utilised a total of 37 compared to 34 used in the soft science abstracts. The most prominent booster in hard science abstracts was 'show/showed/shown' which occurred 15 times as against 8 in the soft science abstracts. On the other hand, the most prominent booster in the soft science abstracts was 'found' which occurred 11 times as against 7 times in the hard science abstracts. Below are some examples of boosters used in SSA and HSA:

*"The results **showed** no significant association between the level of knowledge received by cocoa farmers and their level of market orientation (p>0.05)."* (SSA 3)

*"Our study **showed** that Molucidin can be a potential lead compound for the development of new chemotherapy."* (HSA 30)

*"The study **found** out that majority of the respondents possessed adequate knowledge about sex education and their knowledge level with a mean of 24.82 was high and above the average mean of 20.0."* (SSA 24)

*"A total of 63 out of the 105 samples screened (60%) and 5/95 (5.26%) were **found** to be positive by PET-PCR (mean CT value of 30.5 and 30.8) for Obom and Asutuare respectively."* (HSA 29)

It was found from this study that abstracts within the soft sciences fields explored in this study employed more hedges (69 times) as opposed to those in the hard sciences (58). However, hard sciences authors used more boosters (37 vs 33) than soft sciences authors. This could be attributed to the fact that hard sciences present facts backed by laboratory findings and are therefore certain about their results. Soft sciences, however, are very cautious in generalizing their findings since the opinions and behaviours of participants can easily change. Haufiku and Kangira (2018) argue that when more hedges and fewer boosters are used, it is more likely to leave readers with the impression that their discussions may be merely educated guesses, and not necessarily based on any substantial evidence. On the other hand, other researchers argue that statements that are not properly hedged create the impression that the findings are complete with no room for further research or confirmation (Serholt, 2012). It could be inferred from this study that the use of metadiscoursal, interactional markers could be influenced by one's academic background (soft science or hard science field) and this agrees with Yağiz and Demir (2015) who had emphasised this assertion.

It should, however, be noted that the number of hard science and soft science abstracts used in this study does not completely represent the entire hard and soft science disciplines in their exactitude. Therefore, the generalization and interpretation of the findings are done with caution by pointing out variations across fields rather than making categorical generalizations about the two disciplines.

7. Conclusion

It could be concluded from the results of the study that the 'purpose', 'method', 'product' and, 'conclusion' moves were obligatory in the soft science conference book of abstracts whereas the 'introduction' move was optional. On the other hand, with the exception of the 'method' and the 'product' moves which were obligatory, the rest were conventional moves in the hard science conference abstracts. Also, I-P-M-Pr-C was the most prevalent

move in hard science abstracts while P-M-Pr-C was the most preferred move sequence in the soft science abstracts. Moreover, hard science abstracts and soft science abstracts did not show marked differences in the authors' use of boosters and hedges. Because abstracts are of great importance in the dissemination of scientific findings at academic conferences, knowledge of rudimentary rhetorical moves and metadiscourse elements variations will enable up-and-coming researchers in these fields to adopt the best writing skills that are likely to enhance their chances of being selected to present at academic conferences. The findings contribute to knowledge on genre analysis of abstracts and expand the frontiers of rhetorical moves and metadiscourse research in conference abstracts. The findings of this study are beneficial to academic writing instructors about what rhetorical moves as well as hedges and boosters to include in writing abstracts for academic conferences in the hard and soft sciences. In addition, the findings of the research are useful for conference organizers, editors, and authorities of academic institutions in setting standards for academic conference abstracts. It is recommended that future studies should consider replicating the study using a larger sample size and in diverse settings so as to ensure generalization of the results. Again, further research should consider exploring how metadiscourse elements vary within the various rhetorical moves.

Conflict of interest statement
The authors declare that they have no conflict of interest.

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