The Structural Moves of Highly-Cited Biochemistry Research Articles: A Genre Analysis

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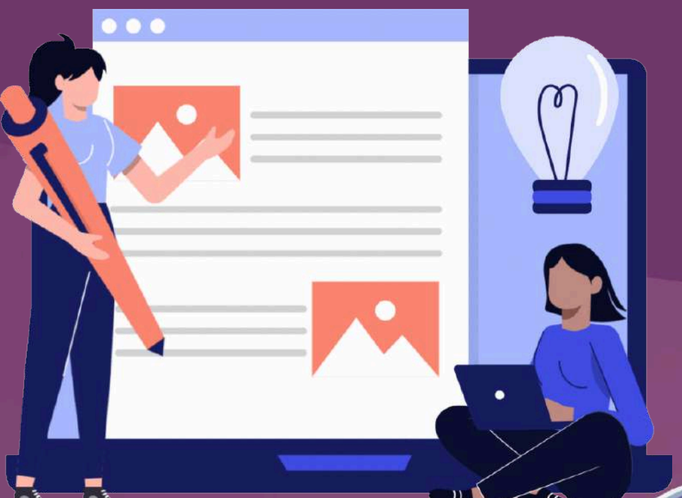
INTRODUCTION

- Highly reputable publications are highly valued due to the rigorous peer review process that ensures the quality and credibility of the research.
- The aim of this study is to analyze the rhetorical structure of the highest-cited biochemistry research articles in SCOPUS.
- The two research questions in this study:

1) How does the rhetorical structure of SCOPUS-indexed biochemistry research articles with high citations?

2) What are the most frequent moves that appear in each section of the biochemistry research articles with high citations in SCOPUS?



LITERATURE REVIEW

PREVIOUS STUDIES

Several studies regarding the genre analysis or move analysis of a research article (RA) have been undertaken to study the rhetorical structure in each section of the research article (RA) starting from the Abstract (e.g. Darabad, 2016; Kurniawan et al., 2019), Introduction (e.g Kanoksilapatham, 2012; Luthfianda et al., 2021), Method (e.g. Bruce, 2008; Musa et al., 2015), Results and Discussion (e.g. Khedri et al., 2013; Tikhonova et al.,2023). and all sections of a research paper (e.g. Kanoksilapatham 2005; Maswana et al., 2015; Amnuai & Wannuruk, 2016).

GENRE OR MOVE ANALYSIS

Swales, (2004) points out that as part of the text, moves not only serve a certain communicative function but each move in the text also contributes to constructing a text's content.

NOVELTY

No study has been conducted to investigate the rhetorical structure of all sections (from abstract to results and discussion) of highly cited biochemistry research articles in SCOPUS.

METHOD

- A descriptive comparative qualitative and quantitative approach was used to carry out the main objective of this study.
- Database selection began by employing a specific filter in SCOPUS.
- A total of 30 biochemistry research articles (RAs) from SCOPUS were analyzed in this study.
- When examining each section of the research article, this study used a variety of frameworks (see. Table 1).
- All of the data was organized through Google Docs so that the appearance of moves and steps could be tabulated.

Table 1. The frameworks used in this study.

SECTION	FRAMEWORK
Abstract	Hyland (2000)
Introduction	Swales (2004)
Method	Cotos et al.,(2017)
Result and Discussion	Moreno & Swales (2018)

FINDING AND DISCUSSION

In the abstract section, almost every move in the 30 biochemistry research articles that were examined has a conventional status.

Abstract Section (Hyland, 2000)			
Communicative Purpose	**Total of BRAs**	**Percent**	**Status**
Move 1: Introduction	**29/30**	***96,7%***	**Conventional**
Move 2: Purpose	**23/30**	***76,7%***	**Conventional**
Move 3: Method	**15/30**	***50%***	**Optional**
Move 4: Product	**25/30**	***83,3%***	**Conventional**
Move 5: Conclusion	**22/30**	***73%***	**Conventional**

Figure 1. Move Occurence of Abstract Section.

FINDING AND DISCUSSION

In the Introduction section, only 3 Moves and steps reach >60% or have conventional status.

Figure 2. Move Occurence of Introduction Section.

Introduction Section (Swales, 2004)				
Communicative Purpose	**Total of BRAs**	**Frequency**	**Percent**	**Status**
Move 1: Establishing a territory				
Step 1: Topic generalizations of increasing specificity	**30/30**	**50**	*100%*	**Conventional**
Move 2: Establishing a niche				
Step 1A: Indicating a gap	**26/30**	**27**	*86,7%*	**Conventional**
Step 1B: Adding to what is known	**23/30**	**24**	*80%*	**Conventional**
Step 2: Presenting positive justification	**0/30**	**0**	*0%*	**Optional**
Move 3: Presenting the present work				
Step 1: Announcing present research descriptively and/or purposively	**19/30**	**20**	*63,3%*	**Optional**
Step 2: Presenting RQs or hypotheses	**2/30**	**2**	*6,7%*	**Optional**
Step 3: Definitional clarifications	**1/30**	**1**	*3,3%*	**Optional**
Step 4: Summarizing methods	**7/30**	**7**	*20%*	**Optional**
Step 5: Announcing principal outcomes	**5/30**	**5**	*16,7%*	**Optional**
Step 6: Stating the value of the present research	**1/30**	**1**	*3,3%*	**Optional**
Step 7: Outlining the structure of the paper	**2/30**	**2**	*6,7%*	**Optional**

FINDING AND DISCUSSION

In the Method section, only **Move 2 (Describe the study) Step 3 (Describe the experimental/study procedure)** has conventional status.

Figure 3. Move Occurence of Method Section.

Method Section

(Cotos et al., 2017)

Communicative Purpose	Total of BRAs	Frequency	Percent	Status
Move 1: Contextualizing Study Methods				
Step 1: Referencing previous work	10/30	11	*33,3%*	Optional
Step 2: Providing general information	4/30	10	*13,3%*	Optional
Step 3: Identifying the methodological approach	9/30	10	*30%*	Optional
Step 4: Describing the setting	2/30	4	*6,7%*	Optional
Step 5: Introducing the subjects/participants	3/30	4	*10%*	Optional
Step 6: Rationalizing pre-experiment decisions	5/30	6	*16,7%*	Optional
Move 2: Describing the Study				
Step 1: Acquiring the data	5/30	8	*16,7%*	Optional
Step 2: Describing the data	7/30	11	*23,3%*	Optional
Step 3: Describing experimental/study procedures	25/30	126	*83,3%*	Conventional
Step 4: Describing tools	4/30	4	*13,3%*	Optional
Step 5: Identifying variables	4/30	4	*13,3%*	Optional
Step 6: Rationalizing experiment decisions	8/30	14	*26,7%*	Optional
Step 7: Reporting incremental	3/30	4	*10%*	Optional
Move 3: Establishing credibility				
Step 1: Preparing the data	0	0	*0%*	Optional
Step 2: Describing data analysis	10/30	25	*33,3%*	Optional
Step 3: Rationalizing data processing/analysis	4/30	25	*13,3%*	Optional

FINDING AND DISCUSSION

In the Result and Discussion section, there are two conventional moves.

Figure 3. Move Occurence of Result and Discussion Section.

Result and Discussion

(Moreno & Swales, 2018)

Communicative Purpose	Total of BRAs	Frequency	Percent	Status
Move 1: Announcing (Function)				
Step 1: Announcing (sub)sections	6/30	31	*20%*	Optional
Step 2: Announcing or referring the reader to external sources	2/30	2	*6.7%*	Optional
Step 3: Announcing moves, steps or propositional meaning	9/30	44	*30%*	Optional
Move 2: Background Information				
Step 1: Restating key features of the current study	15/30	38	*50%*	Optional
Step 2: Reporting background information with citations	16/30	26	*53,3%*	Optional
Step 3: Providing background information without citations	4/30	10	*13,3%*	Optional
Move 3: Summarizing or restating key result				
Step 1: Presenting results neutrally	28/30	137	*93,3%*	Conventional
Step 2: Contrasting with other results in the study	13/30	23	*43,3%*	Optional
Step 3: Highlighting results	14/30	22	*46,7%*	Optional
Move 4: Connecting on key results or other features				
Step 1: Establishing the meaning of results	9/30	16	*30%*	Optional
Step 2: Comparing with previous research	8/30	15	*26,7%*	Optional
Step 3: Explaining results or discussing effects	18/30	70	*60%*	Conventional
Step 4: Making predictions	3/30	3	*10%*	Optional
Step 5: Reacting to results or other features	2/30	3	*6,7%*	Optional
Move 5: Evaluating the current study or other research or practice				
Step 1: Pointing out negative features or limitations of the current study	9/30	10	*30%*	Optional
Step 2: Evaluating the state of knowledge or practice in broad terms	2/30	5	*6,7%*	Optional
Step 3: Stating the contribution of the current study	12/30	13	*40%*	Optional
Step 4: Pointing out positive features of the current or proposed study	5/30	6	*16,7%*	Optional
Step 5: Noting specific gaps in knowledge or defiencied in other research or practice	4/30	6	*13,3%*	Optional
Move 6: Drawing Implications				
Step 1: Making recommendations for future research or practice	13/30	13	*43,3%*	Optional
Step 2: Suggesting the applicability of results or usability of outcomes	7/30	7	*23,3%*	Optional
Step 3: Hypothesizing for future research	5/30	8	*16,7%*	Optional
Move 7: Elaborating				
Step 1: Justifying what is stated in a neighboring proposition	1/30	1	*3,3%*	Optional
Step 2: Exemplifying what has been stated in a previous proposition	0	0	*0%*	Optional
Step 3: Clarifying what has been stated in a previous proposition	1/30	1	*3,3%*	Optional

CONCLUSION

Based on the analysis, this study concluded that:

- In the 30 biochemistry research articles that were analyzed, the Abstract section is a section where almost all moves have conventional status. In contrast, other sections only have a few moves that are considered conventional.
- Move 1 (Introduction) is the most frequently used move in the abstract. One move that is 100% present in the Introduction section is M1S1. The move that appears the most frequently in the Method section is M2S3, while the move that appears the most frequently in the results and discussion section is M3S1.
- Future research is suggested to be conducted by employing bigger corpora.

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