RHETORICAL STRUCTURE ON RESEARCH ARTICLE ABSTRACTS IN INFORMATICS AND COMPUTER SCIENCE JOURNALS

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ABSTRACT

In order to attain coherence, research abstracts must contain a number of crucial steps, although these steps do not always follow the same sequence. Contexts tend to dictate different writing styles. This study looked at how the rhetorical structure or move structures were used, distributed, and arranged in 30 abstracts as incorporating of two Computer Science & Engineering, and Information Systems journals in Indonesia. This study employed qualitative descriptive method, which is a method of research that attempt to describe and interpret the objects in accordance with reality Each move was classified and categorized using the five-move analysis paradigm developed by Hyland. Findings from the analysis showed that there were 12 organizational move pattern appears. Some had all the five moves, some had four moves and others only three. There were 15 abstracts that contained all the five moves identified with 9 abstracts following the framework M1-M2-M3-M4-M5, while the other 6 are random. 13 abstracts contained 4 moves with 10 following the M1-M2-M3-M4 pattern, while the other 3 are random. Another 2 abstracts only contained three moves with M1-M2-M3 and M1-M2-in pattern. In conclusion, this present study showed that the 50% of RA abstracts of the two journals have fulfilled the Hyland's five model. Furthermore, in order to assist the student researchers in creating well-written abstracts, it would be good to provide explicit training and experiential learning through a genre-based approach.

Keywords: move structure; journal abstracts; genre-based approach

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ABSTRAK

Untuk mencapai koherensi, abstrak penelitian harus mengandung sejumlah langkah penting, meskipun langkah-langkah ini tidak selalu mengikuti urutan yang sama. Konteks cenderung menentukan gaya penulisan yang berbeda. Studi ini melihat bagaimana struktur retoris digunakan, didistribusikan, dan disusun dalam 30 abstrak yang menggabungkan dua Jurnal Ilmu & Teknik Komputer, dan Sistem Informasi di Indonesia. Penelitian ini menggunakan metode deskriptif kualitatif, yaitu suatu metode penelitian yang berusaha menggambarkan dan menginterpretasikan objek sesuai dengan kenyataanSetiap gerakan diklasifikasikan dan dikategorikan menggunakan paradigma analisis lima langkah yang dikembangkan oleh Hyland. Hasil analisis menunjukkan bahwa terdapat 12 pola pergerakan organisatoris yang muncul. Beberapa memiliki semua lima perpindahan (move), beberapa memiliki empat perpindahan (move), dan yang lainnya hanya tiga. Terdapat 15 abstrak yang memuat kelima perpindahan (move), yang teridentifikasi dengan 9 abstrak mengikuti kerangka M1-M2-M3-M4-M5, sedangkan 6 abstrak lainnya bersifat acak. 13 abstrak berisi 4 perpindahan (move), dengan 10 mengikuti pola M1-M2-M3-M4, sedangkan 3 lainnya acak. 2 abstrak lainnya hanya berisi tiga gerakan dengan pola M1-M2-M3 dan M1-M2-in. Kesimpulannya, penelitian ini menunjukkan bahwa 50% abstrak RA dari dua jurnal telah memenuhi lima model Hyland. Selanjutnya, untuk membantu mahasiswa peneliti dalam membuat abstrak yang ditulis dengan baik, akan baik untuk memberikan pelatihan eksplisit dan pembelajaran pengalaman melalui pendekatan berbasis genre.

Kata kunci: struktur retoris; abstrak jurnal; pendekatan berbasis genre

INTRODUCTION

The research article (RA) is designed to communicate new knowledge to members of the academic community and persuade them to accept the claims (Hyland, K. &Salager-Meyer, 2008). An abstract is a type of RA that has become a required and inalienable part of research articles. Almost every scholarly journal, whether in English or another language, requires that an abstract be submitted along with the original research article (Martin, 2003).

Abstracts provide a brief summary of the study, "helping readers decide whether to read the entire article," because they are the gateways to knowledge production and the first freely accessible "mini-text" online (Huckin, 2001, p.93). Abstracts are a clear reflection of the entire document, influencing the reader's desire to scan or skim (Lorés, 2004). If the text is accurate in terms of content and structure, readers can easily transition from one sentence to the next and one paragraph to the next. Abstracts, a genre unto themselves (Lorés, 2004), have received a great deal of attention and scrutiny due to their essential roles and functions within research communities. To achieve coherence, research abstracts must include a number of critical steps, which do not always occur in the same order. Different writing styles are often dictated by the context.

A number of studies compared abstracts from diverse fields and publications (Tseng, 2011; Darabad, 2016; Zamin & Hasan, 2018; Zhou & Liao, 2018, Tamela, 2019; Pratiwi et al, 2020, Tocalo, 2021, Wei et al, 2022). However, the investigation of rhetorical structure pertaining to Informatics, Computer Science & Engineering, and Information Systems is rarely discussed.

Previous studies of research article abstract focused on two dimensions: rhetorical structure or move structure (e.g., Cross & Oppenheim, 2006; Lau, 2004; Santos, 1996) and linguistic realizations of the moves (e.g., Busch-Lauer, 1995; Pho, 2008). This study examines the rhetorical move structure and the occurrence of English abstracts in COMMIT (Communication and Information Technology) Journal and Khazanah Informatika, Jurnal Ilmu Komputer dan Informatika. This study hopes to compare the move structures of the two journals to previous research.

Research Problems

In correspondence to the objectives, this study seeks to answer the types of the move structures, the move occurrence in the Abstracts of COMMIT and Khazanah Informatika Journals, and the variation of the move structure found in the abstracts.

Research Objectives

The goal of this study is to identify the rhetorical structure that describes the types of move structures with their variations in the RA abstracts of COMMIT and Khazanah Informatika Journals using Hyland's (2000) five-move model consisting of Introduction (M1), Purpose (M2), Method (M3), Result (M4), and Discussion (M5) (M5). It also identifies the move occurrence in the RA Abstracts to find out the obligatory and optional move.

Literature Review

Genres are frequently associated with recurrent rhetorical contexts because we rely on familiar resources to fulfill routine communication requirements. (2009) (Hyland, 2009a:26) As Berkenkotter and Huckin (1995:6) note, genres are inherently dynamic rhetorical structures that can be manipulated based on use conditions; therefore, genre knowledge is best

conceptualized as a form of situated cognition rooted in disciplinary cultures. Hyland (2009b:27) defines genres as interdependent clusters that contribute to the construction of a particular context.

Table 1
Some Academic Genres

Written genres		Spoken genres	
Research articles	Book reviews	Lectures	Students presentation
Conference abstracts	PhD dissertation	Seminars	Office hour meetings
Grant proposals	Textbooks	Tutorials	Conference presentations
Undergraduate essays	Reprint request	Peer study groups	PhD defences
Submission letters	Editor response letters	Colloquia	Admission interviews

Source: Hyland, K. (2009:27). *Academic Discourse: English in a global context*. London: Continuum.

A research article (RA) is typically limited to a few thousand words and reports the findings of an investigation conducted by its author or authors. In addition, the RA will typically compare its findings to those of other researchers and may examine issues of theory and/or methodology. It will be published or has been published in a research journal or, less frequently, in a book-length collection of edited papers. The fact that the research article is typically published in a particular journal implies. There is an obvious need to maintain an acceptable level of consistency among articles in terms of sectioning, style, referencing, etc., as stated in journal policies and requirements. (Swales,1990: 93).

In genre analysis, a move is a discursive or rhetorical unit that serves a coherent communicative function in a written or spoken discourse (Swales, 2004:228-229). According to Pho (2008:17), "each move has its communicative function, which contributes to the overall communicative function of the text." "What provides its identity and distinguishes it from other genres" is the distinctive organization of the moves in texts belonging to one genre (Parodi, 2014:. 67).

In a rhetorical structure analysis, the identification of moves is a crucial step. According to Swales, the identification of moves and, consequently, the delineation of move boundaries are determined by a "mixed bag" of criteria (2004: 229). In order to identify moves and their boundaries, researchers have also used linguistic characteristics..

In 1990, Swales changed a four-move structure for the RA introduction in 1981 to a three-step create-a-research-space model (CARS model). The CARS model has influenced introduction structure studies. According to Swales (2004:226), the three-part model for English language introductions in leading journals is prototypical. Later, scholars modified CARS to account for the texts analyzed. Samraj (2002:16) analyzed the RA introduction section from conservation biology and wildlife behavior using CARS. It was revealed that M1's 'discussion of previous research' also played a role in M2 and M3, establishing a niche and occupying the niche. It was called a freestanding sub-step that can be used in any step of the introduction. CARS is revised.

Santos (1996) analyzed 94 RA abstracts from applied linguistics using his model of five main moves: Situating the research (M1), Presenting the research (M2), Describing the methodology (M3), Summarizing the results (M4), Discussing the research (M5). M2 and M3 are obligatory moves in the genre, and different moves require different linguistic resources for thematization, tense, and voice.

To analyze academic abstracts, Hyland (2000) proposed a five-move structure: Introduction, Purpose, Method, Product, and Conclusion. Swales and Feak (2004) suggested in their handbook that the structure of abstracts should include the same five elements as a paper, namely background, aim, method, results, and conclusion. According to these guidelines, a five model is a suggested structure of an abstract, even though the moves are labeled differently in different books.

METHOD

Research Design

The descriptive qualitative method was used in this study to investigate the move structures and their frequency. According to Nassaji (2015:129), the goal of descriptive research is to describe a phenomenon and its characteristics. However, qualitative research is

more comprehensive and frequently involves a rich collection of data from various sources to gain a deeper understanding of individual participants, including their opinions, perspectives, and attitudes. Qualitative research collects data in a qualitative manner, and the analysis method is also primarily qualitative. The use of descriptive methods will emerge in response to the study's goals and objectives, which will influence the sampling, data collection, and analysis phases (Doyle et al, 2020).

Data Collection

Lambert V. and C. Lambert (2012:256) say qualitative descriptive studies focus on discovering the nature of specific events. Thus, data collection involves minimal to moderate, structured, open-ended, individual or focus group interviews. However, data collection also may include observations, and examination of records, reports, photographs, and documents. Data analysis of qualitative descriptive research, unlike other qualitative approaches, does not use a pre-existing set of rules that have been generated from the philosophical or epistemological stance of the discipline that created the specific qualitative research approach. The total corpus of this study was 30 RA abstracts taken from two Informatics, Computer Science & Engineering, and Information Systems in COMMIT (Communication and Information Technology) Journal and Khazanah Informatika, Jurnal Ilmu Komputer dan Informatika published in 2021-2022.

Data Analysis

Using Hyland's (2000) five-move model, 30 RA abstracts were analyzed by investigating each move as explained in Table 2 below.

Table 2
Classification and function of moves (Hyland 2000, p.67)

Moves	Function
1. Introduction	Estalibshes context of the paper and motivates the research or discussion.
2. Purpose	Indicates purpose, thesis or hypothesis, outlines the intention behind the paper.
3. Method	Provides information on design, procedures, assumptions, approach, data, etc.
4. Product	States main findings or results, the argument, or

	what was accomplished.
5. Conclusion	Interprets or extends results beyond scope of paper, draws inferences, points to applications or wider implications.

Source: Hyland, K. (2000:67). *Disciplinary Discourses: Social interactions in academic writing*. London: Longman.

In this study, the terms of each move are written in M1 (Introduction), M2 (Purpose), M3 (Method), M4 (Product) and M5 (Conclusion). To classify each move, a table is made to ease the analysis of move structure and the move occurrence. The classification of moves was based on Kanoksilapatham's (2005) criteria in (Viera, 2019), wherein a move, depending on its frequent occurrence was considered as obligatory (100%), conventional (60% to 99%), and optional (less than 60%).

III. FINDINGS AND DISCUSSION.

Types of Rethorical Structures

The Hyland's model abstract analysis shows that an excellent abstract consists of an introduction, purpose, method, result, and conclusion. The following findings were attained as a consequence of an abstract analysis conducted using 30 abstract articles extracted from COMMIT (Communication An Information Technology) Journal and Khazanah Informatika, Jurnal Ilmu Komputer dan Informatika published in the year 2021-2022.

Using Hyland's model to analyze the article abstracts, it was discovered that the introduction move (M1), the purpose move (M2), the method move (M3), the product move (M4), and the conclusion move (M5) were the most frequently occurring patterns of the abstracts in both COMMIT and Khazanah Informatika journal as shown Table 2.

Table 3
The Frequency of the Types of the Move Structures

No.	Move Types	Amount
1	M1-M2-M3-M4-M5	9
2	M1-M3-M2-M4-M5	1
3	M1-M2+M3-M4-M5	1
4	M1-M2-M3-M5-M4	3
5	M2-M1-M4-M5-M3	1
6	M1-M2-M3-M4	6

7	M1-M2-M3-M5	1
8	M1-M2+M3-M4	4
9	M1-M3-M2-M4	1
10	M2-M1-M3-M4	1
11	M1-M2-M4	1
12	M1-M2-M3	1

It was discovered 12 (twelve) different move structure types in the abstracts, as shown in Table 2. They were M1-M2-M3-M4-M5, M1-M3-M2-M4-M5, M1-M2+M3-M4-M, M1-M2-M3-M5-M4, M2-M1-M4-M5-M3, M1-M2-M3-M4, M1-M2-M3-M5, M1-M2+M3-M4, M1-M3-M2-M4, M2-M1-M3-M4, M1-M2-M4, and M1-M2-M3.

The primary movement structure is type 1, as may be observed from the whole abstract. Interestingly, type 1 (M1-M2-M3-M4-M5) is the movement that comes up most frequently in abstract analysis. Since it differs significantly from the findings of earlier investigations, the author attempts to understand the formation of move 5, which frequently manifests in an intriguing abstract pattern. Santos (1996) found that all abstracts include move 2 and move 3: presenting the research, applying the methodology, and summarizing the findings (Move 4). According to Pho (2008), practically all abstracts include a study presentation (Move 2), a methodological description (Move 3), and a summary of the findings (Move 4). However, the movement pattern findings in this study differ from those of Santos (1996) and Pho's research (2008). According to Hyland (2004), there is a tendency for the emergence of the conclusion movement in abstracts, which is consistent with the movement's emergence.

According to Table 2, type 6 with an M1-M2-M3-M4 structure represents the position of the two most frequent motions. Based on these findings, it can be concluded that type 1 and type 6 are the two most prevalent types and can be identified by the fact that abstract authors frequently include an introduction. The purpose of the preliminary step (M1), according to

Hyland (2002), is to establish the writer's context and the motivation for the research or debate. This suggests that the author's use of the abstract is required to provide context for their research. An introduction move could indicate that the soft field domain lacks a clearly defined problem set. Disciplinary differences can be connected to the desire for introductory motions among writers in the peaceful realm.

Additionally, according to Hyland (2004), abstracts tend to occur more frequently with the Introduction movement. In the abstract, each movement is typically written in a different sentence. Basically, M1-M2-M3-M4-M5 makes up the most typical structure. A distinct sentence appears in each movement of this movement arrangement. However, this investigation also revealed that the list of moves made in table 1 contains a plus symbol (+). When one movement is paired with another in a sentence, the plus (+) symbol is used to express this. Therefore, based on this research, it can be concluded that each movement can be delivered in various ways, including by integrating numerous motions into a single sentence.

A merge between motions is depicted in specific abstracts. The fifth abstract, which combines M2 and M2 movements in a single clause, demonstrates this. Basically, M1-M2-M3-M4-M5 makes up the most typical structure. Nine of the 30 abstracts have the M1-M2-M3-M4-M5 structure, which is consistent with the findings of Hyland (2000). Seven additional structures include all five motions but have structures, not in the sequence predicted by Hyland (2000). It is interesting to note that there are 14 structures without M5 with various arrangement variations, including 6 structures without M5 but with an order that follows Hyland's findings, 4 structures without M5 and with combining M2 and M3 movements in a single sentence, and 2 structures without M5 with an order that deviates from Hyland's recommendation. Another variation includes two abstracts with a structure devoid of M5 and M3, as well as one abstract containing M2 and M5. There is another abstract that includes M5 but not M4.

The movement patterns of M1-M2-M3-M4-M5 are the most prevalent among writers, according to the analysis of movement patterns in the COMMIT and Khazanah Informatika journal abstracts. Although the formation of the Introduction and Conclusion movement in the abstract differs from that in earlier research (such as Santos, 1996; Pho, 2008), Hyland (2004) found a trend toward increased emergence of the movement.

Move Occurrence

The research paper's rhetorical arrangement was examined using Hyland's (2000) model. Table 4 presents the findings about the moving frequency in the COMMIT and Khazanah Informatika Journal Abstracts.

Table 4.
The Move Occurrence of the RA Abstracts

Move	Total (n=30)	Percentage (%)
Introduction	29	97
Purpose	30	100
Method	28	93
Product	28	93
Conclusion	16	53

The analysis of move occurrence tells which moves were conventional (obligatory) and optional. In this research, a particular move is considered conventional (obligatory) if it occurs over 60% of the time. Otherwise, it is considered optional. The classification of moves was based on Kanoksilapatham's (2005) criteria in Viera (2019), wherein a move, depending on its frequent occurrence was considered as obligatory (100%), conventional (60% to 99%), and optional (less than 60%).

According to Table 3's occurrence, four moves were identified as standard (obligatory) in abstracts. It was the introduction move (M1), the purpose move (M2), the method move (M3), and the product move (M4). As each occurrence occurred more frequently than 60% of the time, they are known as the obligatory ones.

The analysis of the conclusion move was classified as optional because the percent of the occurrence was 32% and less than 60%.

Move 1 (Introduction), in Hyland's perspective (2000:67), provides the paper's context and explains why the research or discussion is being conducted. Later, Hyland (2004) claims that there has been a rise in the use of the Introduction move in article abstracts, particularly in the soft sciences where authors must provide readers with the context for their research.

Although it was optional in soft disciplines, an earlier study in soft disciplines (e.g., Santos, 1996; Pho, 2008) also found the use of the Introduction move to open their abstracts. In the study by Santos (1996), only 40 occurrences of Move 1 were found in the field of applied linguistics abstracts. Pho (2008) discovered that about half of the abstracts in the fields of applied linguistics and educational technology were used in the same functional move (referred to as "Situating the research" in Pho's research model). This led her to conclude that her findings did not support Hyland's (2004) claim. In contrast to earlier research, there were 29 occurrences in this study's corpus of the COMMIT and Khazanah Informatika Journal Abstracts. It was thought that the introduction move was necessary for the abstracts. The COMMIT and Khazanah Informatika Journal Abstracts suggest that the trend of increasing use of the Introduction move in abstracts, as predicted by Hyland, was present. However, 29 (97%) abstracts included the Introduction, indicating that it was important enough to give readers a context on the studies.

According to Hyland (2000), a purpose move outlines the paper's objective and purpose, thesis, or hypotheses. It was discovered that every article abstract contained a purpose move, as indicated in Table 3. It was evident that moving for a purpose was standard practice, and these findings were consistent with those of Santos (1996) and Pho (2008).

Method move gives information on design, methods, assumptions, approach, data, etc., according to Hyland (2000:67). The method move used in the current investigation was typical. There were 28 occurrences of Move 3 in the corpus, as indicated in Table 3 when the frequency of occurrence in the corpus was examined more closely.

The volumes of information for the Method move were small when combined with the Product move, shortening the data and method. The discussion of the purpose motion explained the presence of the Method move, which was observed in the Purpose move (M2+M3).

The fourth motion, or the product move, presents the primary conclusions, findings, cases, or what was accomplished. The product move was standard. As stated in Table 3, 30 or 100% were in the corpus. According to Hyland (2000:67), the Conclusion move (Move 5) is a technique to analyze or extrapolate results beyond the parameters of the article, make

conclusions, and indicate applications or broader implications. The corpus contained 16 instances of Move 5. Thus, the move called "Conclusion" was optional.

CONCLUSION

This study investigated the distribution and arrangement of moves in 30 abstracts of two Informatics, Computer Science & Engineering, and Information Systems journals in Indonesia. Using Hyland's five-move model, findings from the analysis showed that there were 12 organizational move pattern appears. some had all the five moves, some had four moves and others only three. There were 15 abstracts that contained all the five moves identified with 9 abstracts following the framework M1-M2-M3-M4-M5, while the other 6 are random. 13 abstracts contained 4 moves with 10 following the M1-M2-M3-M4 pattern, while the other 3 are random. Another 2 abstracts only contained three moves with M1-M2-M3 and M1-M2-M4 pattern.

The findings of this study provide some educational significance. The findings provide well-founded evidence that can be applied to decision-making, policy development (e.g., mentoring/editing), teaching strategies, lesson plans, and instructional material development. They can also help the research department and academic department of the college more effectively address issues relating to the magnitude of writers' written outputs. There is a gap between expectations and achievement since abstract writing is typically not taught as a lesson. Therefore, this study provides some insights to close that gap. The instructors in charge of research courses could concentrate on the form and function correlation of these rhetorical units and linguistic structures, as well as other relevant information and examples, by using a genre-based approach and authentic samples, the lecturers teaching research courses might concentrate on the relationship between the form and function of these linguistic structures and rhetorical units, as well as other specific details and instances. In order to establish consistency in the overall organization of the abstracts, Hyland's (2000) five-move model may be helpful in emphasizing the importance of each individual move and the order of the five moves. Given the results of this study, which showed that certain structures included moves that repeated or cycled, it is advisable to give extensive textual instructions regarding the appropriateness of the

order of moves. In result, students who struggle to write abstracts at the college and senior high school levels would have a better understanding of the fundamental rhetorical strategies.

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