The Rhetorical Structure and Verb Tense Employed in Research Article Abstracts in Two Different Disciplines

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Abstract—A number of research studies have confirmed that writing English abstracts for research articles (RAs) is one of the difficulties for non-native or unskilled writers. To gain a clearer insight into their rhetorical structures, the present study analyses English RA abstracts in the two different disciplines (applied linguistic and information and communication technology) published in indexed journals. Sixty RA abstracts from each of the two corpora were analysed using Hyland's (2000) framework. Verb tense used to realize the communicate purposes was closely examined. The results showed that all five moves were conventional in both datasets, but occurred in different degrees of frequency in some moves. The preferred tense was present simple tense. There was a disciplinary variation on rhetorical organizations and tense use of RA abstracts of these different fields. The results of the present study in terms of generic patterns and tense usage for each move should be used to facilitate writing RA abstracts. Also, the study has pedagogical implication for developing genre related materials for teaching EFL/ESL learners.

Index Terms—Abstract, move analysis, research articles, tense.

I. INTRODUCTION

In his landmark book, [1] states that discourse communities "are sociorhetorical networks that form in order to work towards sets of common goals" (p. 9). Based on his notion, 'discourse communities' refers to groups that have goals or purposes, and use communication to achieve these goals. One of the characteristics that established members possess in order to achieve those sets of goals is familiarity with the particular genres that are used to communicate among members. As suggested by [2], genre studies support academic writing, especially for those who want to be part of the discourse community. This is due to the fact that there are variations in genre convention used of each disciplines [3] and [4].

Move analysis is one of the preferred approaches used in genre-based research studies. The purposes of such analysis are to identify the rhetorical structure of texts and explain how texts are constructed or organized in systematic ways and what the communicative functions of the texts are. In addition, the ways to classify moves in particular texts is "on the basis of linguistic evidence, comprehension of the text and understanding of the expectations that both the general academic community and the particular discourse community have of the text" p.226 [2]. The process of analyzing moves begins with the development of an analytical framework, and

identifying and describing the move types that can occur in the genre. The subsequent process is to segment selected texts into moves, noting the type of each move. Analytical results can be described in terms of the sequences of move types [5].

Research articles are one of the genres governed by various conventions of form and content organization [2]. Several research studies have revealed that the rhetorical structure of RAs varies across communities [4] and [6]-[10]. Unskilled writers always ignore the existence of the internal ordering of information in the various sections of research articles [11] and [12]. This lack of awareness causes them to face serious problems when attempting to produce clear, coherent and logically organized RAs.

An abstract is an indispensable section of RA and it is used to capture the essence of the whole article. An abstract is more important in helping the reader to further continuing or ignoring the remaining sections. Therefore, writers should organize their abstracts as best they can. They need to try to foreground their main claims and present themselves as competent community members [13]. Also, many journals published in languages other than English require the submission of an English version of the abstract [14]. This makes the abstract extremely important. With its importance and English version requirement, to some extent, pressure non-English speaking writers to write abstracts for international publication.

In order to get published in well-known international journals, besides following journal's regulations, only abstracts with informative and impressive writing are accepted for publication. Thus authors in nearly all fields are under pressure in writing effective abstracts. It can be said that writing an abstract is a challenging task for writers. This is because they need to present their whole research study in a limited space, but the developed abstract must be in informative and persuasive styles, and importantly it should catch reader's attention. As such, when writing RA abstracts, the authors need to aware both content and rhetorical structure [15]. Learning how abstracts are constructed and presented is considerable value.

With the aim of assisting novice writers in applied linguistics, and information and communication technology to develop their abstracts productively and effectively, the present study investigates the rhetorical moves used in two datasets and look closely whether the rhetorical move structures of RA abstracts in applied linguistic similar to or different from that of RA abstracts in information and communication technology. Besides, linguistic feature in terms of verb tense was also examined. It is expected that the results of the present study would yield a great help in

pedagogy. On the other hand, the findings should be used as a practical template for teaching genre-related writing. As supported by [16], categorizing texts in terms of their functions enable teachers and learners to focus not only the surface structure of the text to the socially situated use of texts with specific intentions. Therefore, the findings should provide some insightful knowledge for writers of the two fields studied to know the conventional rhetorical moves and how each move is realized in terms of the tense form.

II. MEDTHOD

A. Data Collection

There were two corpora in the present study, namely the corpus of RA abstracts in the applied linguistic (hereafter refer to AL) and the corpus of RA abstracts in information and communication technology (hereafter refer to ICT). Each corpus contained 60 English RA abstracts from three indexed international journals, which published by the Institute for Scientific Information (ISI). The reputation, qualification, and accessibility via the Internet were the criteria for selecting the journals. Three journals of AL corpus include Journal of Second language writing (JSLW), Journal of English for academic purposes (JEAP), and English for specific purposes (ESP), whereas the ICT corpus is consist of Journal of Computer-Mediated Communication (JCMC), The Internet and Higher Education (IHE) and Information Systems Research (ISR). The selected abstracted from each corpus were published during the years 2016-2017. The finding of text analyzing from these two disciplines should raise the awareness of the authors in these fields when writing RA abstract sections.

B. Data Analysis

In order to access each analyzed abstract more easily, all RA abstracts from both corpora were codified separately (AL1-AL60 for abstracts number 1 to number 60 in AL corpus and ICT1-ICT60 for abstracts number 1 to number 60 in ICT corpus). The framework on move analysis developed by [17] was employed for the analysis. This is because his model contains five main moves beginning with Introduction, Purpose, Method, Product, and Conclusion. Although the model proposed by [18] is similar to the model created by [17], it was developed from the analysis of 94 abstracts in the field of applied linguistics while [17]'s model was derived from the analysis of 800 abstracts across 8 fields in the field of sciences and social sciences. On the other hand, compared to [19]'s framework, [17]'s model was more appropriate since it contains Introduction move, which is used to establishing a territory or occupying a niche. However, this move was not found in [19]'s model. The move pattern of IMRD pattern developed by [1] was not selected for the present study because of the lack of Purpose move, which it is very important and it should be stated clearly and separately. Consider its applicability, [17]'s model was more widely applicable than the mentioned move models and his model has been used in several research studies [20]-[22]. Therefore, [17] model was the most appropriate framework for the present study. Each abstract was coded manually as

exemplified in Appendix.

To avoid the subjectivity of move coding, inter-rater checking was manipulated. Twenty five percent of the abstracts in the datasets was given to the invited coder, who has expertise in move coding, to analyze independently. Then the coding results were compared and the discussion was made if there were any disagreements. The cut-off point for move classification was based on [23]'s criterion, which use frequency of occurrence to classify each move in terms of obligatory, conventional, or optional. This means that they occur in 100 percent, 60-99 percent, and in less than 60 percent of the corpus, respectively. The model used for analysis is shown in the Fig. 1.

Move	Function
Introduction	Establishes context of the paper and motives the research or discussion.
Purpose	Indicates purpose, thesis or hypothesis, outlines the intention behind the paper.
Method	Provides information on design, procedures, assumption, approach, data, etc.
Product	States main findings or results, the argument, or what was accomplished.
Conclusion	Interprets or extends results beyond scope of paper, draws inferences, points to applications or wider implications.

Fig. 1. [17]'s model.

III. RESULTS AND DISCUSSION

A. Rhetorical Moves in the Two Corpora

Table I presents the results concerning the frequency of move occurrence in each corpus. Five moves proposed by [17] were found in both sets of data. Based on the frequency criteria, all moves in the two corpora were conventional, ranging between 60-100 percent. Noticeably, the proportion of each move in each corpus was similar. The most frequent move of both corpora was Product move. However, the least frequent move was different. Product move is used to states main findings or results, the argument, or what was accomplished in the studied research. The frequencies were 87% in AL corpus and 92 % in ICT corpus. Outstanding frequency of Product move in the present study is in line with that found in previous research studies, which focused on different fields [20], [21], [24], and [25]. Reference [20] examined agricultural abstracts while [24] focused on Management and Marketing abstracts. References [21] and [25] analyzed the abstracts in the field of applied linguistics. This suggests that presenting results is the first most essential part in the abstracts in all fields. To realize this move, some that-clause constructions of certain words (e.g., showed, demonstrated, and revealed) were found frequently. The realization of this move demonstrates in Example 1.

Example 1: Results **showed that** students are expected to perform a wide range of roles, and that some roles included multiple distinct functions. (AL9)

However, only Purpose move showed different frequency of occurrence between the two corpora. By its function, this move is to state the objectives, hypothesis, as well as outline the intention of the research study. Similar to [22]'s finding, the Purpose move can be explicitly signalized by the lexical patterns of determiners (e.g., this and the), inquiry nouns (e.g., study, research, and article), and reporting verbs (e.g.

present, focus, aim, seek, and examine) as shown in Example 2, which is presenting by three different lexical types marked bold, italic, and underlined for **determiner**, *inquiry noun*, and <u>reporting verb</u>, respectively. It can interpret from the finding that the authors in AL field tend to state their research aim more than the authors in ICT field. Specifically, ICT is comparatively young and dynamic field than AL field. It is possible that authors tend to attract the readers by presenting only striking results.

Example 2: **This** *study* <u>seeks</u> to identify factors associated with unsuccessful online course completion and withdrawal by investigating course completion rates in an online physics lecture course. (ICT 1)

TABLE I: Frequency of Moves Found in the Abstracts of the Two Corpora

Move	AL (N=60)	ICT (N=60)
Introduction (I)	44(73%)	45 (75%)
Purpose (P)	45 (75%)	38 (63%)
Method (M)	48 (80%)	44 (73%)
Product (Pr)	52 (87%)	55 (92%)
Conclusion (C)	49 (82%)	45 (75%)

B. Tense Usage

As can be seen in Table II, the present simple tense was the most frequent tense used in both corpora, occurring in all five moves, especially in Conclusion move in both sets of data (Example 3). Also, it was found that each move can be realized by more than one type of tense as showed in Example 4, which shows the realization of Method move using present simple and past simple tenses. Past tense was a second most frequent tense, particular in Method and Product moves. Reference [26] explained that the use of verb tense depends on the nature of the abstract. That is, the present tense is used if the abstract is to summarize the article. However, the past tense is likely to be used when the abstract is to provide an overview of the research.

Example 3: Our findings should *contribute* to developing more authentic English for Legal Purposes (ELP) pedagogies for law students and legal practitioners. (AL51)

Example 4: The corpus *is* composed of 120 student papers evenly distributed across the three L1s and two genres. The essays *were examined* for eight lexico-grammatical features, including traditional measures such as type/token ratio and less typical measures (e.g., adjective-noun combinations). Experienced writing teachers *rated* the essays for language use in order to account for differences in language ability within the student group. (AL39)

There are some distinct differences found in terms of tense usage between the two corpora. First, past tense in AL corpus was used over (63%) than that appeared in ICT (37%) corpus in the Method move. In a study conducted by [27], the Method and Product moves of Medical abstracts were presented in the past tense, accounting for 100 % in both moves. The findings of the present study were completely different from that of the study by [20]. They did not find any

use of the present tense in the Method move in Vietnamese agricultural RA abstracts. As reported in some research studies [7] and [28], method section of RA always display in past form and this section is used to describe work that is already complete at the time of writing and it sounds distant and objective. Perhaps this unique characteristic influences to the use of past tense in Method move in the abstracts. This suggests that there are disciplinary variations in the writing of research abstract, especially the methodology part. However, the regulation of each journal and the authors' awareness of tense usage might be other factors in creating these differences. Second, present simple tense showed the different usage in Introduction and Purpose moves. AL abstracts employed less present simple than ICT set, but this tense used frequently in Purpose move. Last, the present perfect tense was used heavily in Introduction move in AL corpus (Example 5). It outnumbered nearly two times higher than ICT corpus.

Example 5: Previous studies *have compared* student performance for the same or similar classes delivered in both online and face-to-face learning environments, however, few studies *have explored* the effects of change of learning environment play in the student's ability to transfer knowledge gained in prerequisite courses to follow-on, or post-requisite courses. (ICT12)

The high frequency of present simple in Conclusion move of both sets of data should be affected from the result of the frequent references to wider, general knowledge claims and the large amount of explanation and commentary of previous research and the results of the present research [20], and the largely used of present perfect tense in Introduction move might reflect from its function, which aims to give the overview or provide essential background of the study, indicates the significance of the topic to the community and relate the reviewed issues to the study. This means the authors try to link the knowledge or research findings in the past to the studies in the present time.

TABLE II: Verb Tense Frequency in Each Move in the Two Corpora

Move	Past simple		Present simple		Present perfect	
	AL	ICT	AL	ICT	AL	ICT
Introduction	1	4	29	38	27	14
Purpose	9	9	39	29	-	-
Method	31	18	25	27	-	-
Product	19	20	37	38	3	-
Conclusion	4	4	47	42	2	-

IV. CONCLUSION

The cross-disciplinary analysis of RA abstracts in applied linguistics, and information and communication technology showed some similarities and differences in rhetorical structures and tense usage. It was found that five moves were conventional in both corpora, occurring more than 60 percent. The similarity was the frequent use of Product move. However, Introduction and Conclusion were the second most

frequent moves in ICT corpus, whereas Conclusion move was ranked second in AL corpus. Present simple tense was the most frequent tense in both corpora, which was followed by past simple tense. The less frequent tense was present perfect tense. The distinct differences were in the degree of tense usage in each move in both corpora. Past tense in Method move of AL corpus was nearly two times higher than that in ICT corpus.

The findings of the present study have pedagogical implications as implementing in genre-based training in various aspects of writing to meet the rhetorical practice used by different disciplines. The rhetorical organization and verb tense usage in each move should be incorporated into academic writing courses for postgraduate students to prepare themselves for participation in the world of publication. This is because students need to be made aware of not only the rhetorical structure of the RA abstract in their disciplines, but also the grammatical feature in terms of tense usage. With raised genre awareness, they can become sensitive to conventions set by the discourse community, which would lead them to be able to conscientiously shape their abstracts on international acceptance.

Although the present study provides useful information concerning the rhetorical moves and verb tense of indexed English abstracts in contrasting fields, some unresolved issues have emerged from the present research study, which still need to be addressed. Some interesting research areas should be investigated. They are such as comparing RA abstracts published by native and non-native English writers. Presumably, such research studies might show some cultural embedded results. Also, the grammatical constriction of voice usage in each move should be examined.

APPENDIX

Example of Move Identification (Taken from AL50)

[Introduction Move] As higher education institutions (HEIs) across the world strive to become increasingly international, English-medium instruction (EMI) is swiftly becoming mainstream in contexts where English has traditionally held a foreign language status. This change in the language of instruction has given rise to a number of concerns, which are still largely under-explored. Amongst these, research into the effects of EMI on students' disciplinary knowledge is of great importance and should be regarded as crucial so that HEIs offer the same possibilities for student construction of knowledge, irrespective of the language used.
[Purpose Move] Our paper duly examines the impact that EMI may have on student academic performance when compared to their counterparts' in their L1 (Spanish).
[Method Move] As sample data, a comparable set of first year student grades was collected for the subject of Financial Accounting I in a Spanish university during four academic years (2010–14). A total of 383 student grades were gathered and compared using mean difference tests. *[Product Move] Overall, findings show no statistical differences across groups and that the use of EMI does not lower student final academic outcomes.*

[Conclusion Move] These results may be relevant for other EMI contexts, the business education community and ESP course developers in general.

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