Comparing the Move Structure and Thematic Progression Pattern of Chinese and Native Speakers' English Research Article Abstracts (RAA) — A Corpus Based Study of Aeronautics RAA

Siming Huang and Meiying Song

Abstract—Abstract reflects the main content of a research article. Linguists have made great efforts to analyze the structure of abstracts by using genre analysis. However, there have been little quantitative studies to compare Chinese scholars RA's English abstract with that of the native speakers in the field of aeronautics. In particular, few studies have focused on analyzing them by means of combing the theory of genre analysis and thematic progression. This study analyzed the move structure and thematic progression pattern of 60 English abstracts selected from two aeronautics journals respectively (AIAA, CJA). Of the 60 English abstracts, 30 are written by Chinese scholars and 30 by native speakers. The results show that the frequency, order of moves, and the choice of thematic progression patterns in each move differ a lot in the two corpora. This study will not only enrich the empirical study of abstract analysis but also have some implications for academic paper writing, publishing, and teaching.

Index Terms—Genre analysis, international journal writing, move structure, thematic progression pattern.

I. INTRODUCTION

As Ventola states, "abstracts have become a tool of mastering and managing the ever increasing information flow in the scientific community" [1]. With the increasing communication of international academic interactions, abstracts are "a guarantee of the worldwide dissemination of scientific results" [1], which become one of the important ways for Chinese scholars to promote their research achievements to the world. Moreover, the abstract of a research article reflects the scholar's academic ideas, including important information such as research background, purpose, methods, results, and conclusions [2]. Therefore, how writers can effectively achieve the communicative purpose through abstract and achieve the dissemination of their research achievements becomes the focus of researchers' attention [2]. However, up to now, far too little attention has been paid to the differences between native speakers' abstracts and Chinese scholars' abstracts in the field of aeronautics.

John Swales, the representative of genre analysis, defined genre as "an identifiable communicative event characterized by a set of communicative purposes that occur frequently in a particular professional or academic community and that are accepted and understood by members of the community" [3]. The same Genre has a relatively similar structure, and professionals and scholars in a particular field should try to maintain this structural form to improve the quality and efficiency of communication [3]. Swales used the "move" and "step" as a starting point of discourse analysis of English for Specific Purpose (ESP), he also proposed the model of "Creating a research Space " to analyze the introduction part of academic texts, after that, his model has led to a proliferation of studies on genre analysis, and extensively applied to different texts by many researchers [3]. Except for him, there are extensive researches on genre analysis.

The researchers have enriched the quantitative studies of abstracts from different perspectives, such as meta discourse [4], hedges [5], thematic progression [6]-[8], move structure [2], [9], [10], systemic functional grammar [11], [12], and modifier [13]. In addition to the analysis of the macrostructure of abstracts, the researchers have also combined the genre analysis approach with the theory of thematic progression to analyze the microstructure of research articles' abstracts [6]-[8]. As an important part of systemic functional linguistics, thematic progression aims to improve the coherence of discourse and it is one of the important approaches to achieve the articulation and logic of the discourse flow to achieve the communicative purpose effectively [14]. In addition, the choice of thematic progression patterns will produce different semantic meanings, it also contributes to the construction of a text genre to some extent, besides, different moves have preferences for different types of thematic progression patterns [6]. In this regard, move structure and thematic progression have vital links, the combination of these two theories can make the discourse analysis more comprehensive. So far, empirical studies that combine the move structure and thematic progression to analyze abstracts have yet to be enriched, especially in the field of aeronautics.

This study set out to combine the two theoretical frameworks to analyze the distribution of moves and the order of moves in Chinese and native speakers' abstracts, investigating how the information in each move of academic research articles' abstracts is articulated and coherent through the choice of different thematic progression patterns. Hopefully, this research can provide some inspiration for academic abstract writing and English for Academic Purpose (EAP) teaching.

II. THEORETICAL FRAMEWORK

A. Move Analysis

The term "move" is defined by Nwogu as "a text segment made up of a bundle of linguistic features (lexical meaning, propositional meanings, illocutionary forces, etc.) which give the segment a uniform orientation and signal the content of discourse in it" [15]. Swales also considers a move as a discourse fragment with a specific communicative purpose [3]. Sometimes the communicative purpose of written texts is not very clear, and some texts appear to have multiple communicative purposes, therefore, the motion analysis method plays a crucial role in the field of genre analysis [16]. Moves can be achieved through one or more steps, but not all discourse moves contain specific steps, these moves or steps are functional units of discourse, which can be either obligatory or optional in a given genre [17].

In this paper, we adapt and modify Santos' five-move model(B-I-M-R-D). The following are the moves and their functions used in this paper: Background move: Identifying the research field, describing previous research about the field, and highlighting the motivation for the new research. Introduction move: Stating the purposes, questions, and hypotheses of the current study. Method move: Providing information about the research design, steps, methods, and procedures. Result move: Presenting the main findings. Discussion: Further explaining and extending the study results, evaluating and comparing the results with other research, and pointing out the implications of the study [2], [9].

B. Theme and Rheme

Mathesius is the founder of Prague School, he first proposed the concept of theme and rheme from the perspective of "functional syntactic perspective". When he discussed the functional foregrounding of sentences, he first proposed to cut the semantic units of sentences and introduced the concepts of "theme", "rheme" and "transition", which are used to describe the structure of information that is transmitted between sentences [18]. From a Functional grammar perspective, the theme placed at the very beginning of a sentence is usually the starting point of the information, and the information contained in it is known, which is not shared by both sides of the conversation. It introduces the topic in the communicative process; therefore, the theme is called the departure of the information [19]. While, the other parts of the sentence are called the rheme, which is new information and unknown. The main role of the rheme is to describe, explain, and illustrate the theme, it is often the core of the discourse [19]. The system of selection of theme and rheme in the discourse is called thematic progression, which makes the discourse more logical and smooth by placing information in different positions of the sentences. Thematic progression plays a crucial role in the transmission of information and the development of the discourse, reflecting the logical relations between the preceding and following sentences, which helps the development of information flow in the discourse so that the communicative purposes will be effectively achieved in discourse [19]. At the same time, the degree of prominence of thematic progression pattern in the process of discourse development help to establish the genre of the text.

Therefore, this paper selects the thematic progression to analyze the microstructure of English abstracts of Chinese and native speakers' research articles, to help scholars spread their academic opinions effectively and logically, moreover, helping readers better understand the essence of the article.

C. Thematic Progression

The complex thematic relations in discourse are also known as thematic progression, which is an organizing principle for ordering information beyond the sentence level [20]. Each sentence has its thematic structure, and when a sentence stands alone, its theme and rheme are determined and unchanging. However, most of the discourse is composed of two or more sentences, and then some kind of connection and change occurs between the theme and rheme in the sentences, this connection and change are called thematic progression [19]. For example, the theme of a sentence becomes its rheme, and vice versa. Thomas Hawes pointed out that "Thematic progression denotes the strategies available to writers for linking the themes and rhemes in a clause to those of surrounding clauses. It is a key factor in the structuring of information because it acts as a bridge between sentence level and discourse level, coordinating cohesion and coherence." [21]. The proposed model of thematic progression provides a feasible way for people to conduct the microstructural analysis of discourse. There are different ways to divide the thematic progression pattern. In this study, the corpus is annotated with reference to the four basic patterns proposed by Zhu Yongsheng, which include constant theme pattern, constant rheme pattern, simple linear pattern, and crossed pattern [19].

III. METHODOLOGY

A. Corpus and Annotation

This study adopts and modifies the five-move model for abstract analysis and the four types of thematic progression patterns proposed by Zhu Yongsheng to analyze the English abstracts of Chinese and native speakers in the field of aeronautics, 30 for each. According to the principles of representativity, reputation and accessibility proposed by Nwogu. The abstracts of native speakers in this study were all from the American Institute of Aeronautics and Astronautics (AIAA), which is the authoritative journal with the first impact factor in the field of aeronautics abroad. The English abstracts of Chinese scholars were obtained from the Chinese Journal of Aeronautics (CJA) sponsored by the Chinese Society of aeronautics and astronautics, which is a comprehensive scientific and technical journal of aeronautics in China, it has long been ranked first in Chinese journals of Aeronautics. To ensure timeliness, the corpus was randomly selected from the English abstracts of research articles that were published from 2020 to 2022, and the native speakers were all from inner circle countries (speakers whose native language is English).

In this study, the annotation of the corpus consists of three stages: In the first stage, the 60 abstracts were first numbered A1-A60 and divided into sentence units (the 60 abstracts in this study totally have 418 sentences, with an average of 7 sentences for each, a total of 11,157 words, an average of 189 words for each). In the second stage, to ensure the

authenticity of the corpus annotation, two qualified researchers manually annotated the 60 abstracts in terms of moves and thematic progression patterns, both researchers have participated in professional training on the identification of moves and thematic progression patterns, when the annotation is completed, they have compared the results, they discussed and negotiated with each other, and turned to the professionals in aeronautics for help when necessary. Two researchers have revised the annotation repeatedly until they reach a basic agreement. Finally, the statistics on the phenomenon of moves and thematic progression were collected and analyzed.

B. Research Questions

This study aims to answer the following three questions:

1) What is the distribution of moves in the English abstracts of Chinese and native speakers' aeronautics research articles?

2) What is the distribution of thematic progression patterns in each move?

3) What are the possible reasons for the similarities and differences in the move structure and choice of thematic progression pattern of Chinese and native speakers' English abstracts?

C. Move Identification

In this paper, we annotated the 60 corpora in terms of moves and find that each move has some typical linguistic features that help us identify the move. The following are some examples.

In the background move, the expressions like "...Play an important role in..", "...develop an essential role in...", "Knowledge on...is essential to...", "...is an important component", "The development of...draws extensive attention to", "...is an important way to..." are frequently repeated.

a) *Helicopter maneuvers on frigates develop an essential role during military operations. However, the complex flow generated by the frigate bluff-body shapes and the interaction with the helicopter downwash during the recovery process must be studied in detail. (AIAA, A11)*

In the introduction move, "Purpose", "This paper present...", "This paper examines various methods for", "The aim of this work is to explore", "This study aims to...", "This study investigated...", "This paper proposes...", "This paper first introduces..."are frequently shown in the corpus.

b) *The aim of this work is to explore a topology optimization approach for the design of load-bearing aircraft components. (AIAA, A10)*

In the method move, the keywords are "Method", "First", "Second", "Third", "... was designed to", "Approach" and some expressions that indicate the steps of an experiment and design.

c) *A high-speed schlieren movie that exhibited multilobe structures in the SPOD was analyzed using a wavelet-based conditional sampling and averaging (WB-CSA) method. (AIAA, A13)*

In the result move, the key expressions are "The result shows that", "Several results highlight"

d) *Simulation results show that regardless of the position of the no-fly zone, the proposed method has good stability in terms of obtaining the reachable domain in any situation. (CJA, A16)*

In the discussion move, some key expressions are "...can be studied in the future", "Compare with....", "The future development trend of...":

e) *The future development trend of the time-triggered communication scheduling design optimization technology in avionics system airborne networks is also discussed. (CJA, A23)*

### D. Thematic Progression Identification

This study adapts Danes' method of identifying the theme, rheme, and the thematic progression pattern, which is based on the following features of the text: the same wording, synonymous expressions, paraphrasing, and semantic inference. The following are some examples of different thematic progression patterns [19].

1) Constant Theme Pattern: The theme is identical in the sentence, but the rheme is different [19].

$$T1 \text{ —— } R1$$
$$|$$
$$T2(=T1) \text{ —— } T2$$
$$\vdots$$
$$Tn(=T1) \text{ —— } Rn$$
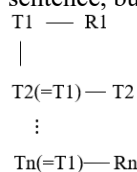
a) *Electric aircraft(T1) significantly improves the environmental friendliness, comfort, maintainability, and economy of aircraft, representing the future development direction of the aviation industry(R1). Electric aircraft(T2) should have high aerodynamic efficiency, high propulsion efficiency, high structure efficiency, and high energy density to improve their endurance(R2). (CJA, A27)*

2) Constant Rheme Pattern: Rheme is identical in the sentence, while the theme is different [19].

$$T1 \text{ —— } R1$$
$$|$$
$$T2 \text{ —— } R2(=R1)$$
$$\vdots$$
$$Tn\text{-}Rn(=R1)$$
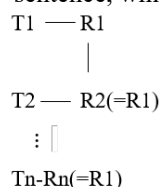
a) *This study (T1) investigated the physical interpretation of subdominant multilobe structure in the SPOD modes (R1). A high-speed schlieren movie (T2) that exhibited multilobe structure in the SPOD was analyzed using a wavelet-based conditional sampling and averaging (WB-CSA) method(R2). (AIAA, A13)*

3) Simple Linear Pattern: the theme of the proceeding sentence becomes the rheme of the following sentence. [19]

$$T1 \text{ —— } R1$$
$$|$$
$$T2(=R1) \text{ —— } R2$$
$$\vdots$$
$$Tn(=Rn\text{-}1) \text{ —— } Rn$$
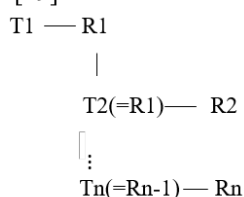
a) *The airfoils(T1) were also tested with two micro-*

vortex generator configurations to show a fully attached recovery process across shorter distances than the Stratford limit(R1). The vortex generators(T2) were observed to introduce circulation-based effects into the flow field(R2). (AIAA, A2)

4) Crossed Pattern: the theme of the proceeding sentence is the rheme of the following sentence. [19]

$$T1 \text{---} R1$$

$$|$$

$$T2 \text{---} R2$$

$$\vdots$$

$$Tn\text{-}Rn(=Tn\text{-}1)$$

a) *The zero-crossing method(T1) applied to a sweeping supersonic jet schlieren reveals shock structure distortion when switching direction in the oscillation cycle(R1). Results (T2) indicate that the zero-crossing method described in this study can also be extended to other non-time-resolved quantitative and qualitative flow field measurement techniques using a simultaneously acquired time-resolved reference signal(R2). (AIAA, A8)*

IV. RESULT

A. The Order of Move

From Table I, it can be concluded that there is a total of 10 types of move order in the 60 texts of this study, among which the order of B-I-M-R-D accounts for a larger proportion in both CJA and AIAA abstracts, with a percentage of 47% and 27% respectively. This finding mirrors the Amnuai's study on the move analysis of the journal of Applied Linguistics [22]. Besides that, the comparison between CJA and AIAA shows that Chinese scholars are better at move structure integrity. Chinese scholars' abstracts account for a larger proportion of the B-I-M-R structure (33%), while native speakers' abstracts account for only 17% of this structure. The statistics of the frequency of moves in this study indicates that most of the native speakers' abstracts have discussion move, while there is an absence of discussion move in Chinese scholars' abstracts. Moreover, the structure of B-M-R and M-R-D also appears in the corpora, the percentage of this structure in native speakers' abstracts are 13% and 3% respectively, which is higher than the percentage of Chinese scholars' abstracts (10%. 0%), such order omitted the introduction move, however, by reading through the original texts, we found that the authors of these abstracts attach their importance on the experimental procedure of their study, the information of the introduction move is incorporated into the method move, by doing so, the abstract can be more concise. This merging of moves is also found in linguistics and pharmacy abstracts [24]. In addition, the I-M-R-D structure is found in both Chinese and foreign scholars' abstracts, and the frequency of this structure in native speakers' abstracts(17%) is higher than in Chinese scholars' abstracts (13%), which indicates that background move is not obligatory move in both abstracts, the possible reason is that the communicative function of the background move is

mainly to review the previous studies and describe the current situation of the research field, and some authors would consider the background move to be a consensus of researchers, so they think background move is not necessary [25]. This finding is similar to Sidek's (2016) study in the abstracts of conference papers [26]. In summary, move omission, move loops, and move inversions occur in both Chinese and native speakers' abstracts, and such phenomena occur more in the abstracts of native speakers' abstracts than in Chinese scholars', these irregularities also appear in other empirical studies [27].

TABLE I: THE DISTRIBUTION OF THE ORDER IN CJA AND AIAA

Order of Move	CJA		AIAA	
	Number	Percentage	Number	percentage
BIMRD	11	37%	7	23%
IBMRD	0	0%	1	3%
IMRMR	0	0%	3	10%
BIMR	10	33%	5	17%
IMRD	2	7%	5	17%
IDRD	0	0%	1	3%
BMR	4	13%	4	13%
IMR	3	10%	3	10%
MRD	0	0%	1	3%

(* B=Background, I=Introduction, M= Method, R=Result, D=Discussion)

There are several possible reasons for the above irregularities in move order:

First, the inversion of move order may be caused by the differences between Chinese and Western academic traditions, as Chinese people's modest academic style may prompt them to first elaborate on previous research results and give respect to previous researchers and then present their research. At the same time, foreign scholars are straightforward and concise in their writing, they prefer to state their research at the very beginning of the paper instead of stating background information. By doing so, the readers' attention can be focused on the current research, which is in line with the Western open-door mindset [2].

Second, the reason for the move loops is related to the characteristics of a specific discipline. Articles in the field of aeronautics involve a large number of experimental procedures and designs, sometimes the experiment is complex and it can be divided into different stages, and each stage has different research methods and results, thus producing a repetition of moves. This circular structure in this study indicates that the focus of the abstracts is on the research method, steps, and corresponding findings [2]. Besides, the repetition of the discussion move in this study is because the researchers directly compare their study with the

previous one, elaborates the advantages of research, and highlights research value, reflecting the confident academic culture of Western scholars [23].

Third, the phenomenon of move omission involves the different writing habits of Chinese and native speakers and the different requirements of international journals. The different obligatory moves lead to different move order of abstracts. In addition, the macro-structure of abstracts is also related to the research content and the genre of the article, therefore, the article such as review articles, theoretical articles, and experimental research articles may differ in the structure of abstracts [28].

TABLE II: THE DISTRIBUTION OF MOVES IN CJA AND AIAA

Move	Background		Introduction		Method	Result	Discussion	
	No.	Per.	No.	Per.	No. Per	No. Per.	No.	Per.
CJA	25	83%	29	97%	30 100%	30 100%	13	43%
AIAA	17	57%	25	83%	29 97%	30 100%	15	50 %

(*No= Number. Per=Percentage)

B. The Frequency of Move Distribution

As shown in Table II, the English abstracts of Chinese and native speakers have a strong similarity in the use of the introduction move (97%, 83%), the method move(100%, 97%), and the result move(100%, 100%), and discussion move(43%, 50%), this result reflects the scientific nature of research articles. This finding is also in line with the results of Ellis' comparative analysis of abstracts from two journals (TEFLIN, TESOL Quarterly) [29]. In this study, although both Chinese and native speakers' abstracts showed omission of the move, the obligatory move is slightly different between the two. In the abstracts written by Chinese scholars, the method move and the result move were obligatory, both accounting for 100%, the background move and the introduction move accounts for a higher percentage. While, In the abstracts written by native speakers, the result move is obligatory (100%) and the method move accounts for a higher percentage (97%), this finding is similar to Amnuai's (2019) research on the abstracts of accounting papers [30]. It was found that background move is optional in the abstracts of both Chinese and native speakers, which is in line with the writing requirements for the EI index [8], [25], but there is significant differences in the use of background move between Chinese and foreign scholars, with Chinese scholars accounting for 83% of background move, which is significantly higher than native speakers(57%), it indicates that foreign scholars strive to be concise in their abstract writing, focusing on the current study, rather than those unnecessary background information [26], but Chinese scholars prefer to introduce more previous research results in the background move, which is also in line with the academic tradition to give respect to previous research results and to be modest in the academic community [2]. In addition, the distribution of discussion move in the abstracts of Chinese scholars (43%) are lower than those of native speakers (50%), and none of them are obligatory, but there is no statistical difference, which is consistent with Hyland's (2000) finding

that native English speakers are good at selling their research results in their abstracts [31]. The main reason for this phenomenon may be due to the modest and rigorous academic attitude of Chinese scholars. The influence of traditional Chinese culture has made Chinese scholars express their contributions and findings euphemistically and modestly, and out of respect for previous research findings and the idea of harmony, they generally do not make direct comparisons with previous studies, especially not directly pointing out the weaknesses of previous researches. This also indicates that the traditional Chinese educational model has produced students who are humble but cannot think critically [25]. Based on this, the author advocates that Chinese researchers not only should respect the previous research results but also be confident to show their contributions to the field, and enhance their academic confidence in the international academic community.

TABLE III: THE DISTRIBUTION OF THEMATIC PROGRESSION PATTERNS IN EACH MOVE

Move	A		B		C		D	
	CJA	AIAA	CJA	AIAA	CJA	AIAA	CJA	AIAA
	(No. / Per.)		(No./ Per.)		(No. / Per.)		(No. / Per.)	
Background	2/8%	4/24%	0/0%	0/0%	4/16%	0/0%	6/24%	3/18%
Introduction	0/0%	2/8%	4/14%	2/8%	0/0%	1/4%	7/24%	6/24%
Method	4/13%	/7%	1/3%	1/3%	0/0%	2/7%	7/23%	6/21%
Result	3/10%	5/17%	3/10%	0/0%	0/0%	1/3%	0/0%	4/13%
Discussion	0/0%	0/0%	0/0%	0/0%	1/33%	0/0%	2/15%	1/7%

(*A=Constant theme pattern B= Constant rheme pattern C= Crossed pattern D=Simple linear pattern)

C. The Distribution of Thematic Progression Patterns in Each Move

As can be seen from Table III, all four types of thematic progression patterns appear in the abstracts of Chinese and native speakers, the total number of thematic progression patterns used by Chinese and foreign scholars does not differ significantly. The thematic progression patterns are mainly found in the background, introduction, and method move, among which the constant theme pattern, constant rheme pattern, and simple linear patterns are predominant [7][8]. Since the average number of sentences in the result and discussion moves is small and does not contain much information in the studied corpora, the thematic progression patterns found in these two moves are not much[8]. This is consistent with the results of Lorés'study of dissertation abstracts in applied linguistics [32]. The predominance of these three thematic progression patterns may be because "technical discourse is always concerned with connections between objects. These connections are usually so complex that they cannot be explicated by simple propositions. Complex sentences have to be formed. This necessarily leads to the repetition of acts of reference, the same object is referred to again and again. What is more, the connections being described are usually beyond imagination. At least some of the objects involved must have some connections to

each other in the reader's prior knowledge and, thereby, in the lexical system of his language" [33] so the number of constant theme progression is higher, furthermore, because constant theme progression pattern and simple linear pattern are the basic patterns, and other thematic progression patterns are derived from these two patterns, so the number of these two patterns is much higher [20]. It is worth noting that the choice of thematic progression pattern is related to the genre of the text and also to whether the author has a common intellectual background with its readers or not [15].

In abstract writing, the same theme is used to connect the context, which helps the author to elaborate on the same topic from multiple angles, so that the readers can understand the topic of this article comprehensively, the constant theme pattern also focus on the description of experimental procedures, which proves to be scientific. Therefore, a constant theme progression pattern is more often found in the background, and results move [21]. In contrast, the introduction move is to elaborate on new information and introduce the current research, so the rheme is mostly new information in the article, and the authors also tend to use the rheme in the introduction move to develop the article [7]. In addition, both Chinese and foreign scholars use a large number of linear patterns in the method move, because abstracts of aeronautics involve a large number of experimental procedures and corresponding experimental results, making the article semantically progressive, interlocking, logical, and able to express the research design and results concisely and directly [25]. Additionally, because the authors usually elaborate on their research by dividing it into several aspects, this phenomenon is also more common in the journal of *Nature* [34]. After comparison, it is worth mentioning that there still exist many differences in the choice of the thematic progression patterns in the background move between Chinese and native speakers' abstracts, with Chinese scholars tending to choose the simple linear, crossed pattern and the constant theme pattern, while native speakers tend to choose the constant theme progression. In the method move, the choice of thematic progression patterns in Chinese scholars' abstracts proves to be one-fold, mainly using the simple linear progression pattern, followed by the constant theme pattern, while native speakers' choice of thematic progression patterns is multiple, with the simple linear pattern being the dominant pattern, except that, all four types of patterns are involved. Ebrahimi and Khedri [35] mentioned in their study that cultural background and academic writing experiences may affect English learners'choice of thematic progression pattern [36]. In summary, according to the previous research findings on move order, the abstracts of foreign scholars were found to have more move inversion and loops in the method move which explains why foreign scholars tend to choose multiple types of thematic progression patterns in method move to develop their article.

V. CONCLUSION

This paper explores the similarities and differences between the English abstracts of Chinese and native speakers' research articles in terms of move structure and thematic progression patterns, trying to discover how changes in move structure influence the choice of thematic progression pattern.

The results of the comparison show that, first, Chinese scholars are better in move structure integrity, second, both Chinese and native speakers' abstracts show the phenomenon of move omission, move loops, and move inversion, these happen more frequently in native speakers' abstracts. Third, the differences between Chinese and native speakers' abstracts in the number of thematic progression patterns are not significant, with more constant theme progression, constant rheme progression, and simple linear progression. But native speakers use multiple types of thematic progression patterns than Chinese. The above findings suggest that the choice of the thematic progression types differs among the moves in English abstracts.

The corpus of this study is small, but it is enough to show the reliability of the research results, we can continue to expand the corpus for further research. By analyzing the English abstracts of Chinese and native speakers' aeronautics research articles, this study can provide some references for writing a clear and logical abstract of a research article. At the same time, this study does not intend to provide scholars with a fixed writing paradigm, but rather to inspire scholars to break out of their mindset, understand disciplinary differences, and make concrete analyses when writing academic papers. In pedagogy, the researchers of this study argue that teachers should provide tailored training to students with the help of a genre-based pedagogical method so that students can realize that discourse is not only a linguistic construct but also a construct of social meaning [34]. Only in this way can students' academic writing be improved. In the future, it is expected that more and more scholars can deeply understand the concept of "New Liberal Arts"(新文科) and apply linguistic theories in their academic writing to disseminate advanced academic achievements to the world.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Huang Siming conducted the research, analyzed the data and wrote the paper, Song Meiying contributed by guiding and doing data analysis, together with the text development and revision.

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