

GENRE ANALYSIS USING HYLAND'S FIVE-MOVE
MODEL ON ABSTRACTS OF COMPUTER SCIENCE
JOURNAL ARTICLES WRITTEN BY
EFL CHINESE AUTHORS

WANG PEIFENG

SULTAN IDRIS EDUCATION UNIVERSITY

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GENRE ANALYSIS USING HYLAND'S FIVE-MOVE MODEL ON ABSTRACTS
OF COMPUTER SCIENCE JOURNAL ARTICLES WRITTEN BY
EFL CHINESE AUTHORS

WANG PEIFENG

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ABSTRACT

This study aims to examine the moves and steps found in research article abstracts within the computer science discipline, specifically those written by EFL writers at Chinese universities. Additionally, it seeks to investigate the extent to which these abstracts conform to Hyland's five-move model, thereby assessing the structural compatibility of the abstracts with established academic standards. Furthermore, it explores the underlying rationale behind the rhetorical moves employed by Chinese academics, aiming to uncover the strategic choices made in their writing process. Another objective of this research is to determine how EFL Chinese writers utilize conjunctions to realize and articulate move structures within their research article abstracts. The study employed a qualitative research approach, using a postpositivist approach to investigate the rhetorical moves and strategies used in research papers in the field of computer science. The study analyzed the English abstract sections of 200 research articles published by Chinese academics in 2021, using a move analysis technique to identify and categorize the rhetorical strategies used. The study found that conjunctions played a crucial role in shaping the narrative structure of abstracts, particularly in their alignment with Hyland's model, and that EFL Chinese writers demonstrated an awareness of the strategic use of conjunctions in crafting their article abstracts. The study also highlighted the importance of cultural and linguistic factors, such as the disparities between learners' first language (L1) and second language (L2), and the need for targeted instruction on cohesive devices. The findings have implications for teaching and evaluating academic writing in computer science, emphasizing the importance of conjunctions in enhancing narrative coherence and overall effectiveness.



ANALISIS GENRE MENGGUNAKAN MODEL LIMA LANGKAH HYLAND PADA ABSTRAK ARTIKEL JURNAL SAINS KOMPUTER DITULIS OLEH PENGARANG EFL CINA

ABSTRAK

Kajian ini bertujuan untuk meneliti gerak dan langkah yang terdapat dalam abstrak artikel penyelidikan dalam disiplin sains komputer, khususnya yang ditulis oleh penulis EFL di universiti-universiti di China. Selain itu, kajian ini berhasrat untuk menyiasat sejauh mana abstrak ini mematuhi model lima gerak Hyland, yang mana menilai kesesuaian struktur abstrak dengan piawaian akademik yang ditetapkan. Kajian ini juga meneroka rasional di sebalik gerak retorik yang digunakan oleh ahli akademik di China, dengan tujuan untuk mendedahkan pilihan strategik yang dibuat dalam proses penulisan mereka. Satu lagi objektif kajian ini ialah untuk menentukan bagaimana penulis EFL China menggunakan kata hubung untuk merealisasikan dan mengartikulasikan struktur gerak dalam abstrak artikel penyelidikan mereka. Kajian ini menggunakan pendekatan penyelidikan kualitatif, menggunakan pendekatan pasca-positivis untuk menyiasat gerak dan strategi retorik yang digunakan dalam kertas penyelidikan dalam bidang sains komputer. Kajian ini menganalisis bahagian abstrak bahasa Inggeris dari 200 artikel penyelidikan yang diterbitkan oleh ahli akademik di China pada tahun 2021, menggunakan teknik analisis gerak untuk mengenal pasti dan mengkategorikan strategi retorik yang digunakan. Kajian ini mendapati bahawa kata hubung memainkan peranan penting dalam membentuk struktur naratif abstrak, terutamanya dalam penjajaran mereka dengan model Hyland, dan bahawa penulis EFL di China menunjukkan kesedaran tentang penggunaan strategik kata hubung dalam menggubal abstrak artikel mereka. Kajian ini juga menekankan kepentingan faktor budaya dan linguistik, seperti perbezaan antara bahasa pertama (L1) dan bahasa kedua (L2) pelajar, serta keperluan untuk pengajaran yang disasarkan pada kalimat kohesif. Penemuan ini mempunyai implikasi untuk pengajaran dan penilaian penulisan akademik dalam bidang sains komputer, menekankan kepentingan kata hubung dalam meningkatkan koherensi naratif dan keberkesanan keseluruhan.



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CHAPTER 1

INTRODUCTION

This chapter served as an introduction to the overall research project. The purpose of this study was to perform a genre analysis on research publications written by Chinese scholars in the field of computer. In this chapter, we discussed the history of the research, the problem statement, the research objectives, and the research questions. In addition, the conclusion of the thesis included a discussion on the importance of the research that was conducted. Hyland's five-move model (2000) was used as the conceptual underpinning for this study. This chapter also gives the essential terms that were utilized repeatedly throughout the course of this research.

1.2 Background of the Study

English has greatly impacted academics and established its position as the world's primary language of communication. In several academic sectors throughout the world, non-native English speakers, especially Chinese scholars, are becoming more and more well-known writers. Research has demonstrated how important English is for international communication and how it is becoming more and more common in academic contexts. English's ongoing dominance is highlighted by recent study. The "*The Future of English*" study from the British Council states that for the foreseeable future, English will continue to be the most spoken language in the world and will be essential to education and cross-border communication (British Council, 2023). The paper highlights the interconnectedness of English's domination in a variety of fields, including as academia, business, and daily communication (Patel et al., 2023).

The idea of linguistic neo-imperialism is covered in another research that was published in *Frontiers in Psychology*. It shows how English has quietly maintained its dominance in peripheral nations through social, cultural, and economic channels. According to Zeng et al. (2023), the widespread impact of English maintains its dominance and influences the preservation of regional languages. Empirical studies back up these conclusions, demonstrating the growing contribution of non-native English speakers to academic research in a range of fields. English fluency is crucial for academic success, as demonstrated by the substantial growth in Chinese researchers' production in English-language journals, according to a 2022 study on their publishing patterns (Li & Zhao, 2022). These studies highlight the complex dynamics of English

as a global lingua franca, shaping not only communication but also academic practices and policies worldwide.

The abstract section of research articles played an important part in academic writing as it created the groundwork for the research and gave readers an overview of the study. This was because both of these functions were essential to the research itself. However, writing abstracts in English could be difficult for writers who did not speak English as their first language since these writers might have had trouble grasping the conventions of the genre and adjusting to the expectations of the audience they were writing for.

In recent years, genre analysis has evolved as a valuable method for investigating the communicative objectives and linguistic characteristics of academic genres. This development has occurred due to the growing popularity of the field. Genre analysis provides insights into how writers use language to achieve their communicative aims by analysing the rhetorical structures, linguistic aspects, and communicative purposes of academic genres. Empirical studies have demonstrated the effectiveness of this approach in various academic contexts.

For instance, Bhatia (2017) highlights the importance of genre analysis in understanding professional and academic communication. His study emphasizes how genre analysis helps identify the rhetorical structures and language features used in specific academic genres to meet their communicative goals. Similarly, Hyland (2019) explores how genre analysis can reveal the conventions and expectations within academic writing, providing valuable guidance for non-native English speakers.

Further empirical research by Swales (2020) demonstrates the application of genre analysis in examining research article introductions across different disciplines. This study reveals the common rhetorical moves and linguistic features that characterize effective academic writing. Additionally, research by Samraj (2016) shows how genre analysis can uncover disciplinary variations in academic writing, helping writers tailor their language use to specific academic communities. These studies collectively underscore the significance of genre analysis in enhancing our understanding of academic writing and its communicative functions.

However, contrary to the above studies, limited research has focused on the genre of computer science articles produced by Chinese writers. Nonetheless, there have been some studies on the abstract sections of research publications written in English. This investigation aims to address this research gap by conducting a genre analysis of the abstract sections of research articles in the field of computer science authored by Chinese academics who are English as a Foreign Language (EFL) speakers. The study seeks to provide a deeper understanding of the rhetorical and linguistic conventions of this genre by examining the genre features of the abstract sections. Additionally, this research aims to offer insights into how Chinese scholars might enhance their academic writing in English. The findings of this study could also have implications for teaching English language and academic writing to non-native English speakers.

It is crucial to recognize that the ability to publish successful research articles in English has become increasingly important for Chinese academics. The publication of research articles in high-impact journals written in English has emerged as an

essential component of both academic achievement and professional development, driven by the proliferation of international collaborations. Writing well-structured and coherent research articles in English requires not only a high degree of language proficiency but also an understanding of the conventions specific to the discipline. This dual demand underscores the importance of mastering both linguistic and disciplinary norms to achieve academic success.

In addition, research has shown that the abstract section of a research article is particularly challenging for writers who are not native English speakers. This difficulty arises because the abstract requires writers to navigate the expectations of the target audience, establish the research gap and rationale, and provide a clear research question or hypothesis (Bhatia, 2017; Hyland, 2019). Furthermore, the abstract must adhere to the genre conventions of the academic discipline while also being clear, consistent, and convincing (Swales, 2020; Samraj, 2016). These demands make the abstract a critical yet challenging part of the research article for non-native English-speaking scholars.

Given these challenges, it is crucial to analyze the genre elements of the abstract sections in research articles written in English by Chinese authors. This study aims to identify common rhetorical and linguistic characteristics, as well as variations across different academic disciplines, through a genre analysis of these abstracts. By examining the rationale behind the move structures and the linguistic features, such as conjunctions, used by Chinese writers, this analysis seeks to uncover the strategies employed to produce effective abstracts in English. The insights gained can help improve the academic writing skills of non-native English speakers.



In the field of applied linguistics, genre analysis has been extensively utilized to examine the characteristics and functions of various discourse genres. Within academic writing, genre analysis has been applied to identify the rhetorical and linguistic features of different sections of research articles, such as the introduction, abstract, literature review, methodology, results, and discussion (Flowerdew, 2015; Paltridge, 2018). This approach enables writers to gain a deeper understanding of the communicative aims and conventions of different genres, thereby providing valuable guidance for academic writing training (Bruce, 2014; Anthony, 2019). By analyzing the genre features of academic writing, researchers can offer direction for improving the clarity, coherence, and overall effectiveness of scholarly communication (Hyland, 2018; Nwogu, 1997).



Prior studies have indicated that genre analysis can be particularly beneficial for writers who are not native English speakers, as it aids in developing a better understanding of the conventions of academic writing in English and in enhancing their writing skills. Specifically, genre analysis can assist Chinese scholars in bridging the gap between the rhetorical traditions of Chinese academic writing and those of English academic writing. This method provides guidance on how to adapt to the expectations of English-speaking audiences, thereby improving the overall quality and effectiveness of their academic writing (Connor, 2008; Swales, 2011). By employing genre analysis, Chinese scholars can gain insights into the structural and linguistic norms of English academic discourse, facilitating more successful integration into the global academic community (Cotos, 2014; Cheng, 2018).



Therefore, this study had substantial implications not only for research but also for education. It contributed to the expanding body of research on genre analysis and academic writing in English, and it also aimed to provide practical recommendations for Chinese writers who were writing research articles in English. This study aimed to shed light on the writing of research journal abstracts in English by examining the genre and linguistic features of the abstract section of research articles written by Chinese writers. The ultimate aim of this research was to improve the quality and impact of research publications written by Chinese writers in English, as well as to foster effective communication and collaboration among members of the academic community all over the world.

The abstract section of research articles is a critical component that serves multiple purposes, such as summarizing the research, helping readers determine the relevance of the article, and aiding in indexing and searchability. According to Swales (2004), the abstract section of a research article serves the crucial function of summarizing the research problem, methods, results, and conclusions for readers. Typically, the abstract is concise, generally comprising 150-250 words. Its importance cannot be overstated, as it provides a snapshot of the research's nature and significance, significantly influencing the reader's decision to engage with the full article. Writing an effective abstract requires a thorough understanding of the genre conventions and rhetorical strategies specific to the discipline. Additionally, it demands the ability to clearly and accurately convey the core ideas of the research in a succinct manner (Swales, 2004).

According to Bhatia (2004), the abstract serves the dual purpose of attracting potential readers and providing a preview of the research's content and relevance. Effective abstract writing requires adherence to the genre conventions and rhetorical techniques of the discipline, utilizing specific linguistic elements and structures to convey the research's significance (Bhatia, 2004).

Abstracts play a crucial role in scientific communication by offering a concise account of the research and highlighting its relevance (Wang, 2018; Shang & Liu, 2019; Mousavi & Tavakoli, 2020; Arman & Tavakoli, 2021). The conventions and rhetorical strategies for effective abstract writing can vary between disciplines and cultures (Wang, 2018; Shang & Liu, 2019; Mousavi & Tavakoli, 2020; Arman & Tavakoli, 2021). Several studies indicate that abstracts across different fields adhere to a predetermined genre structure and employ a variety of linguistic and rhetorical methods to convey information about the research (Shang & Liu, 2019; Mousavi & Tavakoli, 2020; Arman & Tavakoli, 2021; Wang, 2018).

While the Chinese CNKI database contains many English-language computer science research articles produced by Chinese writers, little study has been done on the genre characteristics of abstracts in these publications (Wang, 2018). In order to effectively communicate research to an international audience, it is crucial to be familiar with the genre conventions and rhetorical tactics of abstract writing in a variety of fields and cultures (Shang & Liu, 2019; Mousavi & Tavakoli, 2020; Arman & Tavakoli, 2021). To address this deficiency, more studies need to be conducted on the abstracts of English-language research articles in the field of computer science produced by Chinese academics (Wang, 2018). By learning the conventions of abstract

writing, writers can more successfully convey their findings to a wide audience around the world (Mousavi & Tavakoli, 2020; Arman & Tavakoli, 2021).

In the China context, writing effective abstracts poses significant challenges for Chinese EFL (English as a Foreign Language) writers. Chinese EFL writers often struggle with understanding and applying the rhetorical conventions that are standard in English-language academic writing. The differences between Chinese and English rhetorical traditions can make it difficult for these writers to structure their abstracts in a way that meets the expectations of an international audience.

Clearly articulating the research gap and rationale is another major hurdle. Chinese EFL writers may find it challenging to succinctly establish the importance of their research and to position their work within the broader academic discourse, which is crucial for engaging readers and reviewers. Linguistic challenges, including grammar, vocabulary, and the use of cohesive devices like conjunctions, often impede Chinese EFL writers. These issues can result in abstracts that are less coherent and harder to understand, reducing the impact of the research.

The abstract must adhere to the specific genre conventions of the discipline, which includes being clear, consistent, and convincing. For Chinese EFL writers, mastering these conventions requires not only linguistic skills but also an understanding of the disciplinary norms.

Although some research has been conducted on the genre characteristics of abstracts in computer science research publications produced by Chinese writers, a

significant research deficit remains in this field (Zhu, 2018; Liu, 2020; Wang & Guo, 2021). These studies have highlighted the distinctive rhetorical maneuvers and linguistic characteristics present in these abstracts, which often reflect the writers' cultural and linguistic backgrounds. However, further research is necessary to gain a comprehensive understanding of the discourse conventions and research strategies employed by Chinese writers in this area. Enhanced comprehension of the genre conventions and rhetorical strategies used in abstracts of computer science research articles written in English by Chinese scientists can improve the clarity and effectiveness of research communication within the international academic community.

Further investigation into the rhetorical patterns and linguistic qualities utilised by Chinese academics in computer science is essential due to a notable research gap in the genre analysis of abstracts in English-language research publications by Chinese writers. As the field of computer science continues to expand and evolve, understanding the discourse conventions and methods employed by academics from diverse cultural and linguistic backgrounds is increasingly important. A deeper awareness of these norms and practices will enable writers to effectively communicate their research to an international audience, facilitating cross-cultural communication and collaboration.

Despite the many obstacles, there is a growing interest in researching the genre characteristics of abstracts in computer science research publications produced in English by Chinese academics. Given the increasing internationalization of computer science, it is crucial to understand how Chinese writers from diverse linguistic backgrounds convey their findings to a global audience. Addressing the research gap in this area will enhance the understanding of the discourse conventions and rhetorical

methods used by Chinese scholars in computer science research articles, thereby improving knowledge exchange in the field. Zheng (2021) further highlights this issue, noting a widespread lack of genre-specific writing skills among Chinese computer science researchers.

In addition, the difficulty in adhering to genre norms and rhetorical tactics that are special to the area of computer science is an issue that is specific to the writing of research articles in computer science that are conducted by Chinese writers (Wang, 2018). This is a challenge that is peculiar to writing research articles in computer science. Writers from China may have a solid background in academic writing in their native language, but they may have difficulty adapting to the varied standards and expectations of academic writing in computer science written in English. This might lead to difficulties in producing abstracts, introductions, and conclusions that are clear and succinct, and that successfully express the relevance and contribution of their research to an international audience.

Additionally, Chinese writers may have difficulties with issues grammar, which might hamper their capacity to convey their study to a worldwide audience in an accurate and effective manner. These obstacles have the potential to reduce the impact and visibility of Chinese research in the field of computer science. They also highlight the necessity for specialized support and training to assist Chinese writers in improving their ability to write academically in English on computer science topics.

In the academic field of computer science, Chinese scholars face significant challenges in producing English-language research articles that meet international

standards. Writing effective abstracts exemplifies these challenges, as scholars must navigate the dual demands of rhetorical finesse and linguistic precision. Wang (2018) emphasizes the difficulties these authors encounter in adhering to the stringent genre rules and nuanced rhetorical strategies characteristic of scholarly English writing. These challenges are further compounded when Chinese writers attempt to craft abstracts using move structures, an organizational tool that shapes the flow of ideas according to widely recognized conventions such as Introduction, Methods, Results, and Discussion (IMRaD).

The struggle extends to the realm of language mechanics as highlighted by Li (2021) and Huang & Liu (2019), where the intricate choice of technical terminology, grammar, and diction poses a substantial hurdle, potentially marring the clarity with which research is communicated to a diverse readership. Similarly, Chen and Chen (2021) observe that the effective use of lexical bundles, critical for the coherence and cohesion of academic prose, often eludes these EFL writers, while Zhang and Liu (2021) note frequent shortcomings in vocabulary, syntax, and style. These elements, though technical, have profound implications for the intelligibility and reception of the research presented.

The appropriate use of conjunctions, as highlighted in previous discussions, presents significant challenges for Chinese scholars. Conjunctions serve as the connective tissue between thoughts and propositions and must be employed with precision to reflect the intended logical relationships (Castagnoli & Fait, 2023; Chen et al., 2022; Cotnoir & Varzi, 2021). Due to syntactic and discursive differences between

Chinese and English, Chinese authors may find it difficult to use conjunctions in ways that meet the expectations of their English-speaking peers.

Addressing these linguistic and rhetorical obstacles is not merely a matter of linguistic adjustment; it is fundamental to the projection of scholarly credibility and the impact of Chinese research on the global stage (Li, 2023; Luzón & Pérez, 2022). The crafting of abstracts, the nuanced use of language, and the mastery of discourse structures are intertwined skills that, when honed, can significantly bolster the influence and visibility of Chinese academics in the international domain (Ceneciro, Estoque & Chavez, 2023; NIE, 2024). Therefore, it is essential to not only acknowledge these multifaceted challenges but also to actively pursue targeted support and training initiatives. Such endeavors will empower Chinese scholars to transcend linguistic barriers and contribute their valuable insights to the scientific community with the clarity and impact that their research merits.

Understanding the rhetorical patterns and linguistic elements utilised by Chinese scholars in the abstract portions of English-written research articles in computer science remains a significant research gap. As the discipline of computer science continues to develop and expand, it is increasingly crucial to comprehend the discourse conventions and methods employed by academics from diverse cultural and linguistic backgrounds (Tian, 2020). A stronger awareness of these norms and practices will enable writers to effectively communicate their research to an international audience, fostering cross-cultural communication and collaboration. One of the most promising aspects of genre analysis of the abstract sections of computer science

research articles by Chinese writers is its potential to enhance communication and address this research gap.

It is possible to contribute to an improvement in the quality and clarity of research communication in the field of computer science by gaining an understanding of the specific rhetorical maneuvers and linguistic characteristics of abstracts found in research articles authored by Chinese writers in the field of computer science. This may result in improved visibility and influence of Chinese research within the worldwide academic community and may also help in the development of more effective research communication tactics.

In addition, the research has the potential to contribute to the creation of educational techniques and resources that can assist Chinese writers in enhancing their academic writing skills in English pertaining to computer science. In general, the study has major repercussions for the furthering of knowledge and innovation in the field of computer science, as well as for the growth of successful research communication methods in China. These repercussions and implications are all interconnected.

1.4 Research Objectives

The research is driven by the following objectives:

1. To examine the moves and steps found in research article abstracts in the computer science discipline that are written by EFL writers in Chinese universities.
2. To investigate the extent of conformity to Hyland' five-move model (2000) in writing research article abstracts by writers in the computer science discipline in Chinese universities.
3. To explore the underlying rationale behind the rhetorical moves used in research article abstracts by Chinese scholars in the computer science discipline.
4. To determine how the EFL Chinese writers use conjunctions in the realization of the move structures in their research article abstracts.

Upon consideration of the main issues and the problem statement of this research, the following research questions are formulated to provide a clear framework, narrative, and justification for this research. Therefore, this research was conducted to answer the following research questions:

1. What are the moves and steps typically found in the research article abstracts in the computer discipline that are written by writers in Chinese universities?
2. To what extent do the writers in the computer science discipline in Chinese universities conform to Hyland' five-move model (2000) in writing their research article abstracts?

3. What is the underlying rationale behind the rhetorical moves used in research article abstracts by Chinese scholars in the computer science discipline?
4. How are conjunctions being used by the EFL Chinese writers in the realization of the moves in their research article abstracts?

1.6 Theoretical Framework

This study employs Hyland's (2000) Five-Move model, Bhatia's (2004) Genre Analysis model and Singh's (2014) Computer-analysis corpus analysis (CACA) model as the theoretical underpinnings to analyse the abstract sections of research articles written by Chinese scholars in the field of computer science. The following section elaborates each

of these models and its suitability for the present study.

1.6.1 Hyland's (2000) Five-Move Model

Hyland's model is particularly suitable for this study due to its comprehensive approach to genre analysis and its specific focus on the rhetorical structure of academic abstracts. Hyland's five-move model identifies five distinct moves in research article abstracts: Introduction, Purpose, Method, Product, and Conclusion. Each move serves a specific communicative function, making the model a robust tool for dissecting the complexities of abstract writing. The model's systematic nature allows for a detailed analysis of the rhetorical and linguistic elements that constitute each move, providing insights into how Chinese EFL writers structure their abstracts to meet international academic standards.



Several other models could have been considered for this study, such as Swales' (1990) CARS (Create a Research Space) model and Bhatia's (1993) framework. Swales' CARS model focuses on the introduction sections of research articles, delineating moves that establish a research space. While useful, the CARS model is less comprehensive for abstract analysis as it primarily addresses introductions rather than the entire abstract structure.

Bhatia's framework, on the other hand, offers a broader genre analysis approach, examining the socio-critical and pedagogical perspectives of genre use. Although Bhatia's model provides valuable insights into genre conventions and their pedagogical applications, it is less focused on the specific rhetorical moves within abstracts.



Hyland's model stands out because it is explicitly designed to address the unique features of abstracts, encompassing the entirety of an abstract's structure and purpose. It provides a clear and detailed method for identifying and analysing the rhetorical moves within abstracts, making it the most appropriate choice for this study. This model's focus on the communicative purpose of each move aligns well with the study's objective to improve understanding and teaching of abstract writing among Chinese EFL writers.

By employing Hyland's five-move model, this study aims to provide a nuanced analysis of the rhetorical and linguistic strategies used by Chinese computer science scholars. The findings will not only contribute to the academic understanding of genre-specific writing practices but also offer practical recommendations for improving



abstract writing skills among EFL researchers. This approach ensures a thorough examination of the abstract sections, thereby addressing the identified research gap and enhancing the quality of research communication within the international academic community.

An abstract's primary purpose is to convince readers of the value of engaging with the entire text (Hyland, 2000). Move analysis, a method for dissecting the rhetorical structure of both written and spoken discourses, scrutinizes the linguistic elements that constitute each move (Kurniawan et al., 2019). Analysing the moves within an abstract enables author to assess if their abstracts effectively execute the required rhetorical functions. Using Hyland's (2000) genre analysis, this process focuses on the communicative objectives of abstracts, realized through distinct Moves

and Steps.

Hyland's (2000) five-move model delineates the characteristics that define abstracts as a distinct genre, categorizing them into communicative units: Introduction (Move 1), Purpose (Move 2), Method (Move 3), Product (Move 4), and Conclusion (Move 5). Each of these moves fulfils a unique communicative role: Move 1 sets the study's context, Move 2 articulates the study's aims, Move 3 describes the research methodology, Move 4 presents the core findings, and Move 5 discusses the results or suggests broader implications. Hyland's framework, known for its systematic nature, is widely adopted in academic circles for its effectiveness in academic writing.

Hyland's five-move model was selected as the foundational framework for this analysis due to its comprehensive approach to abstract structure. The model's ability to

systematically categorize and analyse the moves and steps within abstracts makes it particularly suitable for examining the rhetorical and linguistic strategies used by Chinese EFL writers in computer science.

Hyland's Five-Move (2000) Model provides a structured approach to analysing the abstract sections of research articles. This model identifies five distinct moves, each serving a specific communicative function within the abstract. The moves are as follows:

Introduction (Move 1)

Purpose: To set the context and background of the study.

Description: This move introduces the research topic, providing the necessary background information to situate the study within a broader context. It often highlights the importance of the research area and may include a brief review of relevant literature to establish the context.

Example: *"The rapid advancement in artificial intelligence (AI) has led to significant developments in various fields, including computer science."*

Purpose (Move 2)

- Purpose: To state the research aim or objectives.
- Description: This move clearly articulates the main objectives or aims of the research. It tells the reader what the study intends to achieve.
- Example: *"This study aims to investigate the impact of AI-driven algorithms on data processing efficiency in computer networks."*

Method (Move 3)

- Purpose: To describe the research methodology.
- Description: This move provides a concise overview of the methods used in the study, including the research design, data collection techniques, and analytical procedures.
- Example: *"We employed a quantitative research design, utilizing machine learning algorithms to analyze data from various computer networks."*

Product (Move 4)

- Purpose: To present the main findings or results.
- Description: This move summarizes the key findings or results of the research. It highlights the most significant outcomes of the study.

Example: *"The results indicate a 30% improvement in data processing efficiency when using the proposed AI-driven algorithms compared to traditional methods."*

Conclusion (Move 5)

Purpose: To discuss the implications and significance of the results.

Description: This move interprets the results, discussing their broader implications, potential applications, and relevance to the field. It may also suggest directions for future research.

Example: *"These findings suggest that AI-driven algorithms could significantly enhance data processing capabilities in computer networks, paving the way for more efficient and effective computing solutions."*

Using Hyland's model, this study systematically analyses the rhetorical structure of abstracts in computer science research articles authored by Chinese EFL writers. By breaking down each abstract into these five moves, the analysis aims to identify common patterns and deviations from established genre conventions.

The model's systematic approach ensures a comprehensive examination of the abstract sections, allowing for a detailed understanding of how Chinese EFL writers construct their abstracts to meet international academic standards. This analysis not only contributes to the academic understanding of genre-specific writing practices but

also provides practical recommendations for improving abstract writing skills among EFL researchers.

1.6.2 Bhatia's (2004) Genre Analysis Model

The socio-critical perspective and the pedagogical perspective are the two primary viewpoints proposed in Bhatia's genre analysis model, as displayed in Figure 1.1 (Bhatia, 2002, p. 16). This study uses the pedagogical perspective, which Bhatia elaborates on by defining four ways in which the model can be implemented in genre studies (Bhatia, 2002, p. 14). Additionally, Bhatia outlines how the model can be applied in various other types of studies.

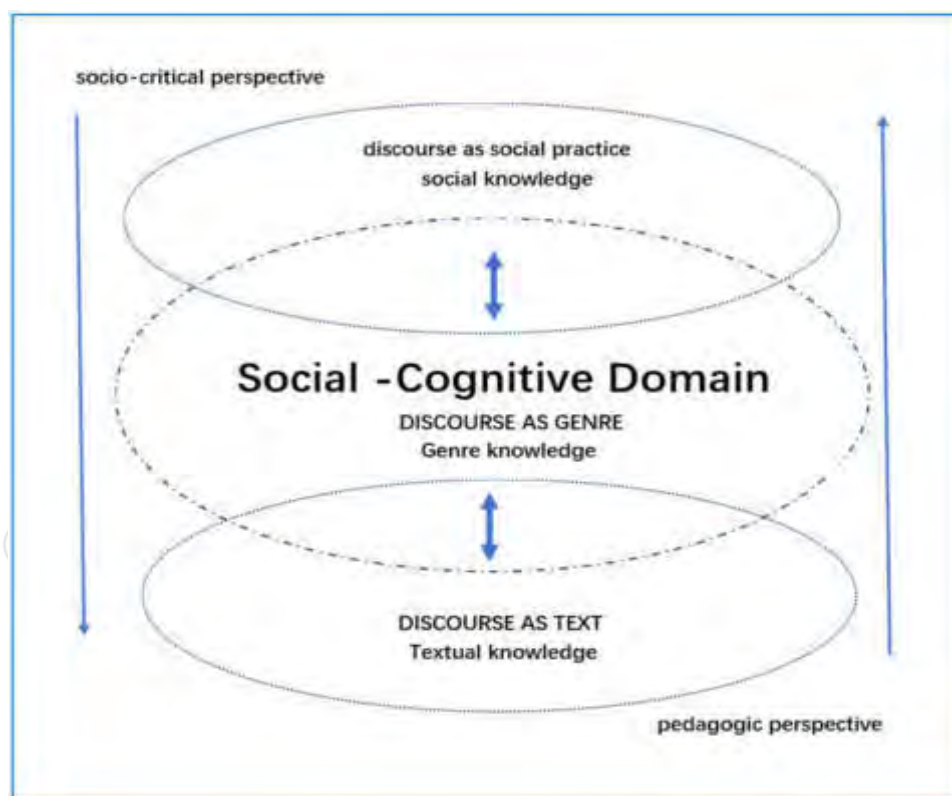
To enhance the analysis, this study supplements Hyland's five-move model with Bhatia's pedagogical perspective. By adopting this combined approach, the analysis aims to equip students to meet the communicative needs of disciplinary communication, particularly in the context of writing research articles. The objective is to identify the key communicative requirements associated with research article writing, thereby improving students' ability to meet these expectations effectively.

In summary, integrating Bhatia's socio-critical and pedagogical insights with Hyland's structured move analysis allows for a more comprehensive examination of the genre conventions in research article abstracts. This dual-framework approach ensures that the study not only addresses the rhetorical and linguistic elements but also

considers the broader educational implications for enhancing academic writing skills among EFL students, thus answering the research questions of the study.

Figure 1.1

Bhatia's (2004) Genre Analytical Model



According to Bhatia (2004), the pedagogical viewpoint makes it easier to integrate the findings of genre analysis with language learning methods. This provides students with the ability to satisfy the communicative requirements of the discourse community that is under consideration. Bhatia also argues (page 11) that Swales' model may be used to address the question of why certain discourse-genres are created and used by specialist communities in certain ways. This can be done by applying the model to answer the question.

An abstract's purpose is to convince readers of the value in engaging with the entire text (Hyland, 2000). Move analysis, a method for dissecting the rhetorical structure of both written and spoken discourses, does so by scrutinizing the linguistic elements that constitute each move (Kurniawan et al., 2019). Therefore, analysing the moves within an abstract enables author to assess if their abstracts effectively execute the required rhetorical functions. Through the lens of Hyland's (2000) genre analysis, rather than Swales', this process focuses on the communicative objectives of abstracts, which are realized through distinct Moves and Steps.

To summarize, this research makes use of a pedagogical approach that is informed by Hyland's five-move model (2000) and Bhatia's Genre Analysis model (2002) in order to discover the essential communicative objectives that are involved in the process of creating research papers for educational instruction. By providing students with a better understanding of the specific requirements of this type of writing, the primary objective of this study is to enhance their ability to fulfill the specific communication requirements that are associated with writing research articles.

1.6.3 Singh's (2014) Computer-assisted corpus analysis (CACA) Model

The present study has also incorporated the computer-assisted corpus analysis (CACA) approach proposed by Singh (2014). Singh (2014) and Singh, Yasmin, and Shamsudin (2012) have thoroughly explored the computer-assisted corpus analysis (CACA) approach, utilizing a compiled representative corpus. Their research centered on the communicative events generated by engineers in Malaysian petroleum firms. The goal



was to compile and use a corpus to showcase various CACA techniques, such as move analysis, examination of sentence-level linguistic structural patterns, and the calculation of linguistic form frequencies within the corpus.

The act of compiling a corpus has traditionally been undertaken with a specific objective in mind. Singh (2014) adopted a systematic procedure for the compilation of the corpus. Singh (2014, 2020) proposed the CACA approach as a valuable technique for accessing and analysing the micro-level features of texts. Several studies have utilised the CACA approach to examine the linguistic structures present in corpora derived from diverse genres, such as argumentative essays, newspaper articles, sales and purchase documents, and published journal articles. These studies, conducted by Singh (2014), Lateh, Shamsudin, and Singh (2015), Kanestion and Singh (2017), Kanestion et al. (2016), Singh and Singh (2019), Hajimia and Singh (2019), and Al-Shorman and Singh (2019), have provided evidence supporting the effectiveness of the CACA approach.

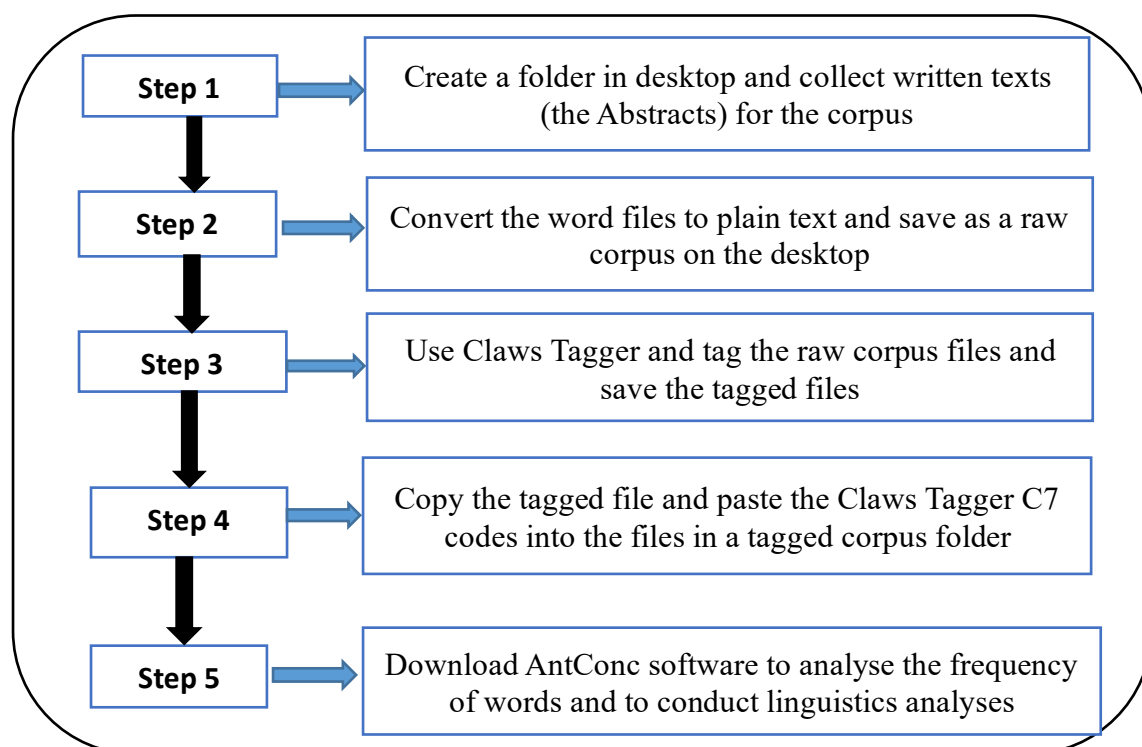
Singh (2014) specifically developed and proposed the CACA approach to identify linguistic features such as structural linguistic patterns in genre-specific corpora. This includes frequency analyses, sentence-level syntax analysis, distributional patterns of sentence structure, and subject-verb agreement. Singh's methodology offers an opportunity to further examine structural linguistic patterns using the CACA approach which will be elaborated further in Chapter Three of the thesis.



The present study utilised a representative corpus (Singh, 2012, 2014), developed from the abstracts of computer science articles written by Chinese authors, with the aim to analyse the written strategies used by the authors. The corpus is then subjected to a computer-assisted corpus analysis (CACA) approach to uncover the underlying linguistic patterns and structural features that characterised the genre. By employing the CACA approach, the study aimed to conduct a detailed linguistic analysis, enhancing the understanding of the specific communicative needs and the writing conventions within the corpus. This method not only facilitates a comprehensive examination of the genre-specific linguistic elements but also provides insights into improving the academic writing skills of Chinese EFL scholars in computer science. Figure 1.2 shows the fundamental elements of the CACA approach adapted for the present study.

Figure 1.2

Computer-Assisted Corpus Analysis (CACA) Model (adapted from Singh, 2012, 2014)



Significantly, the present study employed three fundamental approaches as the theoretical underpinning. These approaches are crucial for providing a comprehensive analysis of the abstracts written by Chinese authors in the field of computer science. Figure 1.2 illustrates the theoretical framework of the study.

Hyland's Five-Move Model

This approach is used to dissect the rhetorical structure of the abstracts. Hyland's model identifies five distinct moves Introduction, Purpose, Method, Product, and Conclusion, each serving a specific communicative function. This model helps in understanding how Chinese EFL writers structure their abstracts to meet international academic standards.

Bhatia's Socio-Critical and Pedagogical Perspectives

To supplement Hyland's model, Bhatia's socio-critical and pedagogical perspectives are integrated into the framework. Bhatia's model provides insights into the broader socio-cultural and educational contexts influencing genre conventions. This dual approach ensures that the analysis not only focuses on the textual features but also considers the socio-cultural factors affecting the writing practices of Chinese scholars.

Computer-Assisted Corpus Analysis (CACA)

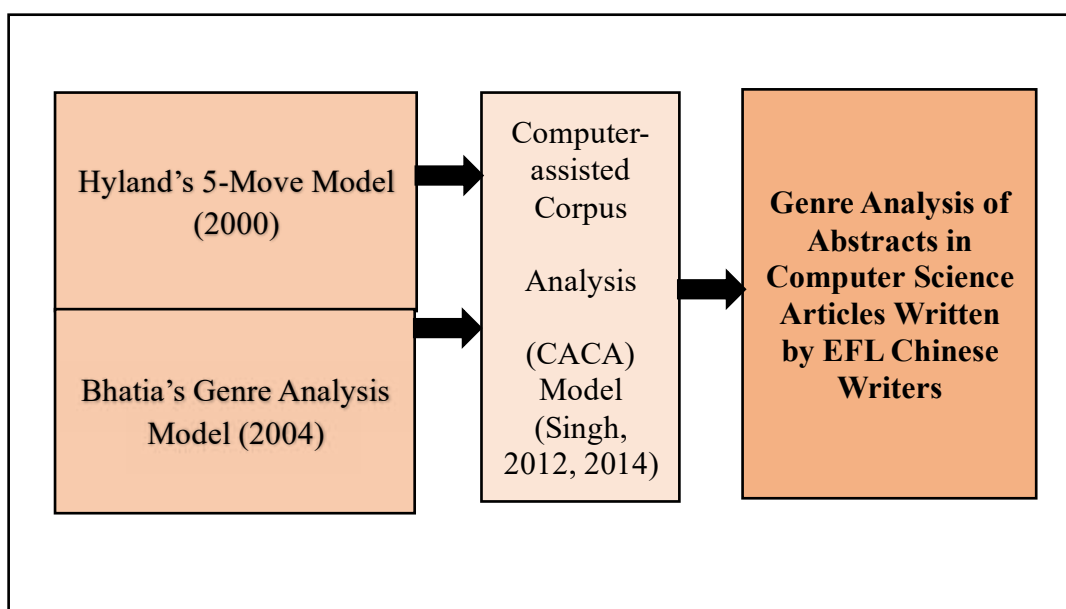
The CACA approach is employed to perform a detailed linguistic analysis of the compiled corpus. This method allows for the examination of micro-level linguistic features, such as sentence structure, subject-verb agreement, and the frequency of linguistic forms. By analyzing these elements, the study aims to uncover the underlying patterns and structures that characterized the genre of research abstracts.

These three approaches collectively form the theoretical foundation of the study, enabling a multi-dimensional analysis of the abstracts. The integration of rhetorical, socio-cultural, and linguistic perspectives provides a robust framework for understanding the communicative needs and conventions of Chinese EFL writers in computer science. This comprehensive approach not only facilitates a deeper analysis of the genre-specific features but also offers practical recommendations for improving academic writing skills.

Figure 1.3 visually represents the theoretical framework, illustrating the interplay between Hyland's Five-Move Model, Bhatia's Genre Analytical Model, and the Computer-Assisted Corpus Analysis (CACA) Model in the context of this study.

Figure 1.3

The Theoretical Framework of the Study



1.7 Significance of Study

The significance of this study, which performed a genre analysis of the abstract sections of research articles written by Chinese scholars in the field of computer science, is twofold.

In the first place, the study has the potential to improve our comprehension of the genre conventions and methods utilised by Chinese writers in computer research articles. The study has the potential to discover the distinctive characteristics of Chinese writers' writing and to contribute to the development of a more nuanced comprehension of how Chinese writers communicate the results of their research within the setting of academic publishing by studying the rhetorical maneuvers and linguistic characteristics



of abstracts found within articles of this type. This comprehension can be valuable in the development of specific educational methods and materials to support Chinese writers in improving their English-language academic writing skills, hence increasing their capacity to convey their research findings to an international audience.

Second, the research has the potential to encourage interactions and partnerships between people of different cultures working in the field of computer science. As computer science continues to be a worldwide collaborative subject, a greater understanding of the rhetorical and linguistic elements of research articles written by Chinese scholars helps promote communication and collaboration between writers from different cultural and linguistic backgrounds. This is because better comprehension of the rhetorical and linguistic features of research articles written by Chinese scholars allows for a better understanding of the research articles published by Chinese scholars. This project has the potential to contribute to the development of more effective research communication practices that are inclusive of and accessible to writers from a variety of backgrounds. This will be accomplished by analyzing the similarities and differences in the communication tactics and customs that exist across different cultures.

The significance of this study also resides in the possibility that it will help to improve pedagogical techniques and boost the academic writing skills of Chinese writers who write in English. This study has the potential to inform the development of targeted pedagogical practices and materials that can assist Chinese writers in improving their academic writing skills in English by identifying the genre conventions and strategies used by Chinese writers in the abstract section of computer research





articles. This can be accomplished by determining the strategies used by Chinese writers in the abstract section of computer research articles. training in writing that is genre-based, feedback on writing assignments, and targeted language training that tackles specific linguistic traits revealed in the genre analysis are all examples of activities and materials that could fall under this category.

It is essential for the success of Chinese writers in academic and professional contexts that they improve their academic writing abilities in the English language. This is especially true in the field of computer science, which is becoming increasingly global and collaborative in character. The ability of Chinese writers to successfully convey their research findings to an international audience will be raised if their writing abilities are improved. This can lead to increased visibility and impact of Chinese writers' work in the academic community of other countries. Ultimately, enhancing educational practices and boosting academic writing abilities in the English language can help the progress of knowledge and creativity in the field of computer science, as well as facilitate the sharing of ideas across cultures and the working together of individuals from different backgrounds.

Overall, the study has major implications for the growth of knowledge and creativity in the field of computer science, as well as for the creation of more effective research communication techniques across linguistic barriers. These implications are relevant because the study was conducted in China. This study has the potential to help increase the visibility and impact of Chinese research within the international academic community by improving the ability of Chinese writers to effectively communicate the findings of their research in academic writing using the English language. This will, in



turn, promote the development of new knowledge and innovative approaches within the field of computer science. Additionally, the study can help to the creation of educational techniques and materials to support international students and writers in developing their academic writing skills, hence increasing their performance in academic and professional contexts. This success can be enhanced by strengthening their ability to write academically in their native language.

1.8 Definitions of Terms

Research Articles

In the context of this investigation, the term "research article" refers to the English-language publications on Computer Science research that were written by Chinese scholars and published in CNKI in 2021.

Genre Analysis

According to Bhatia (1993), genre analysis is the study of language use in specific communicative settings, focusing on how conventionalized language structures and patterns are employed to achieve particular communicative goals. It involves examining the socio-cultural and cognitive factors that influence the production and interpretation of texts within a given genre. In the present study, genre analysis refers



to how language is used within a particular context, focusing on the structure, content, and communicative purposes of specific types of texts. It examines the conventionalized features and rhetorical strategies that characterize different genres to understand how they achieve their intended functions.

Move

In the context of the present study, the term "move" relates to the definition that was offered by Swales (2004, pages 228-229). Swales defined a move as a rhetorical unit that performs a certain communication function. A move is an essential component that plays an important part in the overall rhetorical structure of a text. Within this definition, the purpose of the present study is to identify and analyse the rhetorical moves used in the abstract section of computer science research articles written by Chinese writers. The overarching objective of the study is to acquire a more in-depth comprehension of the linguistic and rhetorical characteristics of this type of academic writing.

Rhetoric

Rhetoric, as defined by Porter (2011, p. 1), encompasses the strategies of effective thinking, writing, and speaking. It involves the art of using language persuasively and effectively in various forms of communication, whether written or spoken. Rhetoric includes the study and application of techniques for crafting arguments, presenting



ideas clearly and compellingly, and engaging audiences through the deliberate use of language.

Rhetorical Strategy

The strategy that the authors have decided to use in order to explain their goals in order to accomplish a certain context (Porter, 2011). It is a term that refers to the rhetorical strategy that authors choose to employ in order to effectively communicate their intended goal within a certain setting. This tactic entails picking linguistic and rhetorical elements and arranging them in a certain way to achieve the desired communicative goals within the given context. Specifically, this strategy focuses on how to achieve these goals within the given context. It is essential for authors to make use of a system like this in order to successfully interact with the audience for whom they are writing and to accomplish their writing goals.

Rhetorical Move

Using the prior definitions of "rhetoric" and "move," the phrase "rhetorical move" can be defined as the purposeful use of successful thinking, writing, and speaking procedures to achieve specific communication goals within a given context. This definition builds upon the definitions of "rhetoric" and "move."



1.9 Summary

The first chapter of the thesis introduces the problem statement and the overarching topic of the study. It begins by clearly defining the research problem and issues that underpin the study, setting the stage for the subsequent investigation. The chapter then outlines four primary objectives derived from these identified research problems. This involves analyzing the structural components and rhetorical strategies used in these abstracts to understand how they conform to or diverge from established genre conventions. This entails a detailed examination of the specific linguistic features, such as syntax, vocabulary, and cohesive devices, that contribute to the effectiveness of the abstracts in communicating their intended messages. In addition to these objectives, the chapter discusses the research questions that guide the study. These questions are designed to probe deeper into the issues identified and to direct the focus of the analysis.

The significance of the study is also elaborated upon, highlighting its potential contributions to both academic scholarship and practical applications. The chapter explains how the findings can enhance the understanding of genre conventions in academic writing, particularly for non-native English speakers, and how this understanding can inform teaching practices and improve the quality of research publications. Furthermore, the chapter provides operational definitions of the key terms used throughout the research. These definitions ensure clarity and consistency in the interpretation of concepts and terms, facilitating a better understanding of the study's scope and objectives.



Finally, the chapter outlines the theoretical underpinnings of the study. It introduces and justifies the theoretical frameworks and models that inform the analysis, such as Hyland's five-move model and Bhatia's genre analysis perspectives. This theoretical foundation provides a robust basis for the methodological approach and helps contextualize the research within the broader field of genre studies and applied linguistics.