



UNIVERSITI PUTRA MALAYSIA

***COMPARISON OF RHETORICAL MOVES IN RESEARCH ARTICLES AND
ABSTRACTS IN SOFT AND HARD DISCIPLINES***

DELARAM KHANSARI

FBMK 2016 41



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By

DELARAM KHANSARI

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

February 2016

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Doctor of Philosophy

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February 2016

Chairman: Chan Swee Heng, PhD

Faculty : Modern Languages and Communication

Research article is a prominent communicative genre among members of the academic discourse community. It constitutes several subgenres at the macro level such as abstract and IMRD (Introduction, Method, Results, and Discussion) sections which are organized based on their own communicative purposes. The structure and variations of research articles (RA) and abstracts have been studied extensively across disciplines. It has been postulated that abstract, on its own, include distinctive functions as an independent genre, but at the same time it may follow the content and rhetorical structure of RA. However, the focus of most studies on analyzing RAs has been on the individual section rather than on the entire structure of IMRD sections. The analysis of the rhetorical structure of abstracts in previous studies was also concentrated on the macro-structure rather than on the micro-structure of abstracts. Not many studies have been done on the comparison between abstract and IMRD sections of RA and as a result, the general objective of the study was to explore this aspect in two disciplines (applied Linguistics and Chemistry) as representatives of soft and hard sciences in order to reveal cross disciplinary differences in terms of rhetorical moves and linguistic realizations. Specifically, the present study decided to: a) analyze the rhetorical moves structures of RAs in IMRD sections between two disciplines of AL and CH, b) analyze the rhetorical move structures of abstracts in each IMRD unit across two disciplines, c) compare the rhetorical moves in each IMRD sections between two independent genres of RA and abstract across disciplines, and d) analyze the linguistic realizations in each move in IMRD sections across two disciplines. A mixed-method of qualitative and quantitative analysis was conducted in this cross-disciplinary study. A corpus of 40 (20 from each discipline) research articles were selected for the study. The selected research articles were sourced from 4 ISI journals (2 from each discipline). The corpus was analyzed based on an adapted framework that is based on various contributions of existing models of rhetorical moves in order to give a holistic analysis of the research article and abstract genres. The comparison of related genres (abstract and research article) in this study revealed that not all of the abstracts followed the conventional IMRD structure. In AL discipline, the majority of IMRD RAs included abstract with IMRD structure, however only half of CH abstracts in this study followed their own RAs structures. This result is not congruent with Swales' (1990) claim who believed that abstracts follow their own RA structures in terms of both content and structure. Analyzing these two genres in terms of the frequency of occurrences of moves in

IMRD sections showed a similar trend in the frequency patterns in move selection of each constituents. It can be said that the most frequent move in each IMRD sections of RAs, was also more highlighted in the abstract structures. These results demonstrated the similarity of RA and abstract as two genres in terms of the content and the findings were congruent with Swales' (1990) who commented that the abstracts reflect the information discussed in the RAs. Additionally, the findings in analyzing the linguistic realizations in both fields revealed that the selection of lexical features in each move depends on the nature of disciplines and the communicative intent of the rhetorical moves. To conclude, this investigation hopes to add new knowledge in the area of writing RA in the field of English for Academic Purposes. Knowing how RAs are written and presented will help writers, especially novice writers, who aim to publish in high impact journals, to write in a manner that will gain acceptance by the discourse communities.

Keywords: research article, abstract, genre, IMRD structure, cross disciplinary, rhetorical moves, discourse community

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

PERBANDINGAN PERGERAKAN RETORIKAL DALAM ARTIKEL DAN ABSTRAK PENYELIDIKAN DALAM SAINS TULEN DAN SAINS RINGAN

Oleh

DELARAM KHANSARI

Februari 2016

Pengerusi: Chan Swee Heng, PhD

Fakulti : Bahasa Moden dan Komunikasi

Sesebuah artikel penyelidikan merupakan salah satu genre komunikasi yang penting dalam kalangan ahli sesebuah komuniti wacana dalam pelbagai disiplin dan ia memainkan peranan yang utama bagi genre akademik. Artikel penyelidikan sebagai genre makro terdiri daripada subgenre, seperti abstrak dan seksyen IMRD (Pengenalan, Kaedah, Dapatan dan Perbincangan) yang disusun berdasarkan matlamat komunikasi aspek tersebut. Struktur dan variasi artikel dan abstrak penyelidikan (RA) telah banyak dikaji secara meluas merentas disiplin. Sesebuah abstrak, sebagaimana yang telah di postulatkan ,secara sendirinya, mengandungi fungsi distintif, sebagai sebuah genre independen, tetapi pada masa yang sama ia menyamai kandungan dan struktur retorikal RA. Walau bagaimanapun, fokus kebanyakan kajian yang menganalisis RA adalah secara individu dan bukannya pada struktur keseluruhan seksyen IMRD. Analisis struktur abstrak dalam kajian terdahulu juga menumpukan pada struktur makro daripada struktur mikro abstrak tersebut. Hubungan antara genre juga kurang mendapat perhatian dalam kalangan komuniti akademik. Oleh sebab itu, objektif umum kajian ini adalah untuk meneroka dua disiplin (Linguistik Gunaan (AL) dan Kimia (CH)) sebagai wakil sains tulen dan sains ringan bagi memperlihatkan perbezaan rentas disiplin dari segi pergerakan retorikal dan realisasi linguistik. Khususnya, kajian ini bertujuan untuk: a) menganalisis struktur pergerakan retorikal RA dalam seksyen IMRD antara kedua-dua disiplin, iaitu AL dan CH , b) menganalisis struktur pergerakan retorikal abstrak dalam setiap unit IMRD merentas kedua-dua disiplin, c) membandingkan pergerakan retorik dalam setiap seksyen IMRD antara kedua-dua genre independen RA dan abstrak merentas kedua-dua disiplin. Kaedah campuran, iaitu analisis kuantitatif dan kualitatif telah dijalankan dalam kajian merentas disiplin ini. Kajian ini dijalankan ke atas 40 korpus artikel penyelidikan (20 daripada setiap disiplin). Artikel penyelidikan yang dipilih telah diperoleh daripada 4 jurnal ISI (2 daripada setiap disiplin). Korpus tersebut telah dianalisis berdasarkan kerangka yang diubahsuai daripada pelbagai bahan model yang sedia ada tentang pergerakan retorikal bagi memberikan analisis yang holistik tentang genre artikel dan abstrak penyelidikan. Perbandingan antara genre yang berkaitan (abstrak dan artikel penyelidikan) dalam kajian ini menunjukkan bahawa bukan semua abstrak menyamai struktur IMRD yang konvensional. Dalam disiplin AL, kebanyakan RA IMRD memasukkan abstrak dengan struktur IMRD, manakala, hanya separuh abstrak CH

dalam kajian ini yang menyamai struktur RA . Dapatan ini tidak selaras dengan Swales (1990) yang menyatakan bahawa abstrak menyamai struktur RA mereka sendiri dari segi kedua-duanya ,iaitu kandungan dan struktur. Di samping itu, dengan menganalisis kedua- dua genre ini dari segi frekuensi kekerapan pergerakan seksyen IMRD,dapatan menunjukkan trend yang sama dari segi frekuensi bentuk dalam pemilihan pergerakan bagi setiap konstituen. Oleh sebab itu, dapatlah dikatakan bahawa pergerakan yang paling kerap dalam setiap seksyen IMRD bagi RA juga diperlihatkan dalam struktur abstrak. Dapatan kajian ini memperjelaskan persamaan RA dan abstrak sebagai dua genre dari segi kandungan dan ia adalah selaras dengan Swale (1990) yang memberi komen bahawa sesebuah abstrak memperlihatkan maklumat yang dibincangkan dalam RA. Di sebaliknya, dapatan dalam menganalisis realisasi linguistik dalam kedua-dua bidang menunjukkan bahawa pemilihan ciri leksikal dan konotasinya dalam setiap pergerakan bergantung pada sifat disiplin dan sikap penulis dalam bidang yang berbeza. Penyelidikan ini diharap dapat menambah ilmu pengetahuan baharu pada domain Bahasa Inggeris untuk Tujuan Khusus, terutama sekali Bahasa Inggeris untuk Tujuan Akademik. Dengan mengetahui bagaimana RA ditulis dan dibentangkan akan dapat membantu penulis, terutama penulis baharu yang ingin menerbitkannya dalam jurnal berimpak tinggi supaya menulis dalam bentuk yang dapat diterima oleh komuniti wacana tersebut.

Kata kunci: artikel penyelidikan, abstrak, genre, struktur IMRD, rentas disiplin, pergerakan retorikal, komuniti wacana

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I sincerely hope that this work would be beneficial to all who may need it.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Chan Swee Heng, PhD

Professor
Faculty of Modern Languages and Communication
Universiti Putra Malaysia
(Chairman)

Chan Mei Yuit, PhD

Senior Lecturer
Faculty of Modern Languages and Communication
Universiti Putra Malaysia
(Member)

Helen Tan, PhD

Senior Lecturer
Faculty of Modern Languages and Communication
Universiti Putra Malaysia
(Member)

BUJANG BIN KIM HUAT, PhD

Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

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Name and Matric No.: Delaram Khansari, GS32528

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Signature: _____

Name of Chairman
of Supervisory
Committee:

Professor Dr. Chan Swee Heng

Signature: _____

Name of Member
of Supervisory
Committee:

Dr. Chan Mei Yuit

Signature: _____

Name of Member
of Supervisory
Committee:

Dr. Helen Tan

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LIST OF ABBREVIATIONS

| | |
|-------|---|
| ESP | English for Specific Purposes |
| LSP | Language for Specific Purposes |
| EFL | English as a Foreign Language |
| ESL | English as a Second Language |
| ELT | English Language Teaching |
| EGP | English for General Purposes |
| EAP | English for Academic Purposes |
| EOP | English for Occupational Purposes |
| EVP | English for Vocational Purposes |
| EMP | English for Medical Purposes |
| EBP | English for Business Purposes |
| ELP | English for Legal Purposes |
| ESCP | English for Socio-Cultural Purposes |
| EEP | English for Educational Purposes |
| ESAP | English for Specific Academic Purposes |
| EGAP | English for General Academic Purposes |
| GA | Genre Analysis |
| RA | Research Article |
| IMRD | Introduction, Method, Results, Discussion |
| IMRDC | Introduction, Method, Results, Discussion, Conclusion |
| CARS | Create a Research Space |
| AL | Applied Linguistics |
| CH | Chemistry |
| RQ | Research Question |

L2 Second Language

M Move

S Step



CHAPTER 1

INTRODUCTION

1.1 Overview

This chapter consists of background of the study, statement of the problem, purpose of the study, research questions, and significance of the study. A summary is also provided at the end of this chapter.

1.2 Background of the Study

Since the end of World War II, English for Specific Purposes (ESP) has drawn much attention in the fields of education and applied linguistics. This attention is increased due to the dominance of English language in technology, politics, medicine, economics and media fields. ESP as a branch of Language for Specific Purposes (LSP), addresses the learning and teaching of a specialized variety of English in academic and occupational contexts. The ESP learners mostly are English for Foreign Language (EFL) learners or non-native speakers of English. ESP has developed from the early 1960's to become one of the outstanding areas of teaching for EFL learners today. Teaching of ESP courses is oriented based on the needs of the learners, who are in a specific group of language learners. Thus, teaching language in general, and English, in particular, is unable to meet all learners' needs by way of any kind of syllabus and method. It can be said that ESP instructors are often expected to be able to design, as well as teach, courses for learners with specific needs, that is language needs which may relate to their occupation (e.g. a marketing manager, a pilot, a tourist guide, or a train driver, etc.) or their course of study (e.g. as an undergraduate or post-graduate student of bio-chemistry, or agriculture, etc.), or their academic discipline (e.g. English for Medicine, or Engineering, or Law, etc.).

1.2.1 The Development of ESP

ESP emphasizes on the communicative needs and practices of particular social groups. As Hyland (2002) describes, ESP approach refers to the specific goal of providing the language instruction, which focuses on the specific purposes of students in language learning and this approach is distinguishable from other approaches such as English Language Teaching (ELT). A pioneer work by Halliday, MacIntosh, and Stevens (1964) indicated that ESP was distinguished from ELT in order to provide specific pedagogic practices. In fact, the field of ESP addresses both the theory development and new practices in applied linguistics and also reveals the social aspect of language used in particular communities.

In language teaching and research, ESP has been making a significant contribution to encourage teachers to focus on communication rather than language. In addition, research orientation is highly adopted in ESP teachers' work and some practices such as collaborative pedagogies and awareness of discourse variation are highlighted in

language education. The purpose of ESP courses are oriented to the specific needs of the learners and meets the English requirements of learners by focusing on language, skills and the nature of the genres. For instance, in the case of students studying international banking and finance, who want to be familiar with specialized vocabularies and jargons in MBA, ESP specific courses have been designed to meet the expectations of the learners in this field. Hutchinson and Waters (1987) declared that ESP is a teaching approach in which all the contents and methods are regulated based on the reasons which learners pursue for learning.

Strevens (1988) defined ESP by way of particular characteristics that are categorized in two ways; absolute and variable characteristics. Absolute characteristics are related to the fact that ESP is designed to meet specified needs of the learner and is related in content to particular disciplines, occupations and activities. In addition, ESP is centered on the language appropriate to the activities in syntax, semantics, discourse, and lexis. It is also in contrast with “General English”. On the other hand, variable characteristics is constrained to the language skills to be learned and is not taught based on any pre-ordained methodology.

However, Dudley-Evans (1997) suggested a modified definition for ESP influenced by that of Strevens (1988), in which one of the absolute characteristics, *ESP is in contrast with General English*, is omitted and more variable characteristics are declared in this definition. Needs analysis is a common concern in both ESP and English for General Purposes (EGP), however EGP courses focus on the general needs of the learners unlike ESP syllabus, which is designed based on the specific and immediate needs of the learners. Dudley-Evans (1997) also divided ESP into absolute characteristics and variable ones. Absolute characteristics involve meeting specific needs of the learners. Moreover, ESP makes use of underlying methodologies and activities of the discipline it serves. It also is centered on the language appropriate to these activities in terms of grammar, lexis, register, study skills, discourse and genre. ESP definition by Dudley-Evans (1997) also consists of many variable characteristics: a) ESP may be related to or designed for specific disciplines, b) ESP may use, in specific teaching situations, a different methodology from that of General, c) it is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be for learners at secondary school level, d) ESP is generally designed for intermediate or advanced students, e) most ESP courses assume some basic knowledge of the language systems.

The absolute and variable characteristics of ESP clarify what is and is not ESP. In general, ESP refers to an “approach” to teaching, as an attitude of mind (Dudley-Evans, 1997), and learning of English in a specific discipline. In fact, ESP in language teaching is an approach in which the purpose of the content and method are oriented based on the aim of learners for learning (Hutchinson & Waters, 1987).

In the second-language (L2) writing and ESP fields, the term genre was first proposed in the 1980 by John Swales. In spite of the existence of ESP since the 1960s and using genre analysis as a tool in research and teaching of L2 writing in the 1990s, it was Swales’s book in which the methodology for embedding genre analysis into the teaching and studying of ESP was developed. Genre analysis was begun by Swales by defining two major characteristics of ESP genre approaches, which are their emphasis on academic and research English and utilisation of genre analysis for applied purposes. It can be said

that researchers in ESP genre-based studies generally conduct their genre analyses in academic or professional settings.

The general approach in ESP genre analysis is related to analysing the rhetorical moves in a specific genre and describing how these moves are carried out textually and linguistically. Among the various schools of genre theories (English for specific purposes, North American new rhetoric studies, Australian systematic functional linguistics or Sydney school), the ESP tradition plays the most influential pedagogical role for the learners in second language writing, specifically academic writing. This school is also the most familiar one for ESP researchers and instructors (Bhatia, 1993; Swales, 1990, 2004; Swales & Feak, 2000).

As a result, ESP is utilized as an umbrella term to include professional areas such as English for Academic Purposes (EAP), English for Occupational Purposes (EOP), English for Vocational Purposes (EVP), English for Medical Purposes (EMP), English for Business Purposes (EBP), English for Legal Purposes (ELP), and English for Socio-Cultural Purposes (ESCP) (Belcher, 2009). The focus of the present study is to investigate the academic writing of research article (RA) and abstract in the fields of applied linguistics and chemistry. Thus, EAP is discussed in the next section.

1.2.2 English for Academic Purposes (EAP)

The growth of EAP is stemmed from the awareness of practitioners in the ESP field that the needs of the learners in ESP classes are different and only teaching the general skills in English language cannot be beneficial for students. EAP was also called English for Educational Purposes (EEP) in the past, so the EEP term is rarely used now instead of EAP. EAP plays a “key responsibility” role classes in which English language is a second language for students (ESL learners) in order to help them to develop their academic proficiency (Wei and Flaitz, 2005) and to assist them to “engage with the disciplines” (Dudley-Evans and St. John, 1998).

In turn, Jordan (1989/1997) as a scholar with extensive research and experience in EAP, categorized it in two approaches: English for General Academic Purposes (EGAP) or “common-core” and English for Specific Academic Purposes (ESAP) or “subject-specific” as presented by Coffey (1984) and Blue (1988) respectively. One of the key issues in EAP is to distinguish the specificity between these two types of EAP. EGAP refers to language forms and skills, which are common in all disciplines, however, the differences among conventional patterns and skills in various disciplines which are pertinent to the demands of a specific discipline are discussed in ESAP approach. For instance, reading textbooks or articles, note taking, writing essays or dissertations are related to EGAP, however, learning specific vocabulary and skills related to a subject of study is identified as ESAP.

Due to the fact that ESAP involves disciplinary-based literacies, it encourages scholars to investigate different discourses and practices in various contexts. In this regard, the theory of social constructivism as a learner-centered approach is presented which focuses on the idea that students have authority in the learning process. The theory of cognitive constructivism, introduced by Piaget, confirmed the active role of the learners in the classrooms and social constructivism theory influenced by Vygotsky (1978), emphasizes

on the collaborative learning. Vygotsky as the founding father of social constructivism, believed in social interaction which plays a prominent role in ESP classes. This theory argues that the learning process occurs through interaction with others. It can be said that *social constructionism* forms the basis in the mainstream theoretical perspective in ESP and EAP research today. This theory basically suggests that knowledge and social reality are created through daily interactions between people and particularly through then discourse (Živković, 2014).

The theory of social constructivism also indicates the ways we understand the concepts which are specific in particular contexts and are not stable all the time and the knowledge is therefore revealed by way of discourses in different social communities. In view of this theory, interpreting the scientific texts in their social communities is provided by genre analysis. In the 1980s, researchers in ESP employed genre analysis as a tool in education and pedagogy, however it was John Swales who presented the genre analysis theories and developed the methods for analyzing the genres in ESP field in 1990.

1.2.3 Genre and Discourse Community

In general terms, genre has been defined to encompass organized communicative events, which followed specific communicative goals and they occur in particular discourse communities (Berkenkotter & Huckin, 1995; Bhatia, 1993; Swales, 1990; Swales, 2004). Concept of community is one of the important issues in the definition of genre. Members of a discourse community with a set of common public aims accept certain ways to communicate with each other. These established ways manifest in different genres such as academic papers, debates, books, etc. that are considered as “discursive practices”.

Some characteristics of a discourse community are proposed by Swales (1990). Firstly, it has ascertained public goals among members of a discourse community. Discourse community can be an academic discipline or a social group. For instance, in a Senate or Parliament, the common goal of the community is to attempt to improve government. Secondly, the intercommunication among members uses specific mechanisms. This characteristic will change according to the type of community. The intercommunication among members can be conducted in newsletters, meetings, telecommunications, correspondences, and conversations. Thirdly, it utilizes one or more genres to improve communication based on the common goal, using certain special terminology or jargon. As an example, each community has special expectations concerning the role of texts, their forms and functions. Every day vocabulary in each community can also be expressed in specialized ways or in acronyms (ESP, EAP, ELT, etc.).

In addition, specific approaches are used to communicate in different discourse communities, which give rise to different genres. These approaches are imposed on the members of a discourse community to accept a common form known by other members of the communication group (Swales, 1990). Thus, particular rules that are utilized in communication among members of a community depend on the communicative purposes. For instance, the rhetorical structure in writing novels are not the same with the structure in writing a thesis or social letters. Finally, the ability level of members of a discourse community should be appropriate with the relevant content, to suit the purpose and audience. For instance, members of a biologist community as reviewers of a journal should be experts in this field. As a result, determination of a specific method

is essential to describe the appropriate form of any type of communication which occurs in genre analysis (GA).

In doing GA, it is proposed that it be done by using two approaches; that is exploring 1) lexico-grammatical features of a text, and 2) rhetorical structures or “structural move analysis” (Hyon, 1996) comprising “schematic units or moves” (Nwogu, 1997, p.122). It is important to note that one of the main issues in genre analysis pertains to ESP that had emerged as a field of study in the second half of the twentieth century. In connection with GA, move structure analysis has become a central notion in ESP that analyzes text based on its communicative goals for a specific genre. This communicative purpose is reflected in the rhetorical structure or organization of the genre.

In this view, units of text that are relevant to the communication content, which refer to both speakers’/writers’ goals, are defined as moves (Crossley, 2007). The general text organization and linguistic elements for specific communicative purposes and the relationship between text organization and linguistic features, which exist in a text are determined by move studies (Henry & Rosberry, 1997). According to Nwogu (1997), each move involves constituent elements that establish information in the move by recognizable ways. Although moves exist in all disciplines, the diversity is observed in type and frequency of the moves (Dudley-Evans, 2000).

RAs in academic discourse have been extensively investigated based on “rhetorical movement” analysis (Swales, 1990). Writing RAs and getting accepted for publication have always been one of the mental engagements and expectations of most novice writers during their academic life. RA as an important channel for presenting new scientific findings to discourse community members and beyond has received much attention in the past few decades (Hyland, 2000 and Swales, 1990, 2004).

For example, Nwogu’s (1997) study is carried out by analyzing the overall medical RA and identifies eleven schematic units or “moves” and their constituent elements or sub-moves. In another study, 40 RAs in the field of computer science were investigated by Posteguillo (1999). He found that IMRD model did not occur in this discipline systematically and only three sections of IMRD pattern were applied in computer science RAs: Introduction, Results, and Discussion/Conclusion. Yang and Allison (2004) also assessed the rhetorical structure of 40 RAs in applied linguistics and found that recognizing the macro structure of RAs is a daunting task due to different headings used in each RA for individual section. In addition, 60 biochemistry RAs were analyzed by Kanoksilapatham (2005) in terms of two-level rhetorical structure (moves and steps), and 15 moves were identified in the overall biochemistry RAs. Stoller and Robinson (2013) in support examined full-length of chemistry RAs, focusing on abstract and IMRD sections of RAs and highlighted two rhetorical structures in chemistry RAs: A-IMR [DC] and A-IM[R (DC)]. These move analyses reveal that variations exist in rhetorical structure of RAs in different disciplines. Besides, identification of the moves and steps leads to the description of rhetorical strategies that are employed in the text and the way they are obtained (Swales, 2004).

However, many studies in move analysis focus only on one section of RA, such as Introduction, Method, Results or Discussion (IMRD), and various frameworks were suggested by different scholars for each section. Studies on this “prestigious genre”, to use Swales’ (2004) words, have generally aimed at exploring its communicative moves (Swales, 1990; Bhatia, 1993; Samraj, 2002, 2005). As an example, Swales’ (1990)

investigation analyzed the rhetorical structure of the Introduction section in RAs and presented the CARS model (Create a Research Space) which used in ample studies as an analytical tool for analyzing this section. Moreover, Peacock (2011) has conducted a cross-disciplinary study for analyzing the Method section of 288 RAs in eight disciplines (hard and soft fields) and identified seven moves in this section. The prominent research in analyzing the Results section of RA was conducted by Brett (1994) in which 20 sociology RAs were examined in terms of usage of communicative categories or moves. The Discussion sections of 30 RAs were also analyzed by Holmes (1997) in social sciences field (history, political sciences, and sociology) with regard to the communicative categories or moves utilized in previous studies and identify the differences in rhetorical structure of social sciences.

Each macro-genre can be divided into sub-genres. For instance, RA as a macro genre constitutes sub-genres such as Abstract, Introduction, Method, Results, and Discussion/Conclusion. These sub genres in turn have their own functional moves based on their communicative purposes. Thus, the abstract has also been subject to move analysis. In academic context, abstract as a “part genre of the RA” (Swales & Feak, 2009) play an essential role in the RA so that in all the scholarly journals, abstract should be submitted accompanied by the original manuscript (RA) (Martin, 2003). On the other hand, Swales (1990) points to the format of the abstract as having Introduction, Method, Results, and Discussion (IMRD) units which is the same as the pattern of a RA. He also believes that abstract is accounted as an independent genre because of its distinctive functions, and also indicate the content and structure of the whole text. In the present study, these two genres (RA and abstract) are compared in terms of the rhetorical structure. This comparison is highly neglected in previous genre studies. In this view, Samraj (2005) also stated that the focus of the most of the genre analysis studies was on individual genres rather than to investigate the relationship between genres.

1.2.4 Intertextuality and Cross-Disciplinary Studies

In addition, even within the same genre such as the RA, there could be internal differences as discourses become more specialized to serve specific needs. Devitt (1991) claimed that “any text is best understood within the context of other texts” (p. 336). To illustrate, he examined a set of accountancy texts in order to identify the intertextuality of these texts and he did not concentrate on the rhetorical organization of an individual genre per se. The term, “intertextuality” refers to related genres within individual discourse community or field of study and enables the study of all types of interactions among texts. Therefore, to understand academic writing across disciplines, some researchers not only pursue the investigations of how a particular genre varies across disciplines, but also assess how two or more genres are related to each other in different disciplines.

Cross-disciplinary studies recognize the differences across disciplines. The need to investigate disciplinary differences has been considered in some previous studies in which disciplinary variation in overall RAs was analyzed (Nwogu, 1997; Posteguillo, 1999; Stoller and Robinson, 2013). For instance, authors in physics, mechanical engineering, or biology avoid utilizing within-sentence, however authors use such sentences frequently in applied linguistics and sociology disciplines (Hyland, 1999). In addition, formal style are highly employed by statisticians, however informal and

interactive style that indicate personal involvement is used frequently in philosophy articles (Chang & Swales, 1999). Identifying disciplinary variations reinforces the writers, especially novice writers, understanding of the disciplinary norms in a certain discourse community. However, these disciplinary differences are not only manifested in the generic structure of that genre in the discipline, but also in the relationship between genres. It is noteworthy that in cross-disciplinary studies, the variations in a particular genre are examined across disciplines as well as the relationship among two or more related genres in different disciplines. In this study, one of the main objectives is to analyze not only the rhetorical structure of RA as a whole (Abstract+IMRD) in two disciplines of applied linguistics and chemistry, but also to identify the relationship between two related genres which are abstract and RA in terms of their rhetorical moves.

1.3 Statement of the Problem

Past investigations of RAs (e.g., Brett, 1994; Hopkins & Dudley-Evans, 1988; Yang & Allison, 2003; Samraj, 2002; Swales & Najjar, 1987) paid attention only to specific sections of RAs out of the four conventional sections of Introduction, Method, Results, and Discussion (IMRD) rather than to focus on rhetorical structure of the complete RAs. For instance, Samraj (2002) analyzed the RA Introduction in two related fields, Wildlife behavior and Conservation biology, and Lim (2006) assessed the Method section of RAs in management field. Among the IMRD sections of RAs, only the Results section was investigated by Williams (1999) in medical RAs whereas Basterkmans (2012) work focused on the Discussion section in dentistry RAs.

While these past studies have contributed much in providing insight into the generic structure of RAs following Swales' (1990) seminal work on the Introduction section of the RA, some scholars have pointed out several weaknesses. Firstly, although assigning explicit rules for the determination of move boundaries is essential, the move boundary framework as suggested by Swales is semantically oriented and may involve subjective judgment (Paltridge, 1994). Secondly, the results obtained from analyzing a small number of texts selected as a representative corpus in these studies are not generalizable as the generic structure of texts in the field (e.g., Peng, 1987; Williams, 1999 and Wood, 1982). Most importantly, analyzing the individual sections of RAs provides an incomplete rhetorical description of the texts. This limitation in the scope of most past studies makes it difficult to have a complete view of the rhetorical structure of RAs. For a clearer and more comprehensive understanding of the move structure of RAs in any particular discipline, it is imperative that all the rhetorical sections of the RA be examined.

Next, the rhetorical structure of the RA and its abstract have been extensively studied across a variety of disciplines and cultures. However, identifying the similarities and differences of these two genres has drawn little attention from the academic community (Samraj, 2005). Moreover, Connor and Mauranen (1999, p.60) have noted that the relationship between genres and subgenres in genre studies has not been systematically investigated.

Considering the scarcity of studies on generic interrelations in general, comparing the structure of RAs and their abstracts in a particular discipline would be a worthwhile exploration in genre analysis. Moreover, comparing this generic relationship in two

vastly different disciplines will provide important insights into whether generic relations vary across disciplinary boundaries. Based on the current state of research whereby the rhetorical structure description of the RA, the relationship between the structures of the RA and its abstract (which has been regarded as a subgenre), and character of this relationship across disciplines have not been fully explored, this study sought to investigate the move structure of all the rhetorical sections of the RA, namely the Introduction, Method, Results, and Discussion sections, and compare the move structure of the RA and its abstract. A further comparison was made between the structures of the RA and the abstract in two vastly different disciplines, Applied Linguistics (AL) and Chemistry (CH) as soft and hard sciences respectively (Betcher, 1989) in order to identify their variations across disciplines.

To the best of my knowledge, previous cross-disciplinary studies seem not to have addressed the relationship of RA and abstract as two genres in different disciplines. The findings from this cross-disciplinary analysis can guide students to identify variations in terms of the relationship between two related genres of the RA and the abstract in two different fields. In addition, many researches have been done on move analysis of the RA abstract, which constitute the macrostructure, with only a few focusing on description of the microstructure of each IMRD units in the abstract. Lastly, this study hypothesizes that disciplinary variation not only is manifested in rhetorical structure, but also in the relationship among connected genres.

In move analysis studies, analysing the linguistic realizations used in each move in the entire sections of the RA (Introduction, Method, Results, and Discussion sections) has rarely been conducted across disciplines. Such a linguistic analysis on various rhetorical moves is useful in at least two ways: First, it makes clear the textual evidence that signals the communicative purpose of the move. It is an important factor in increasing the validity of any analysis that requires subjective judgment. Second, it provides a basis for a comparison of specialised language across disciplines, which was one of the objectives of this study. Hence, in addition to the analysis of moves, the linguistic realizations that signal the moves were also examined. To address this concern, the present study investigates linguistic realizations in each move that are used in the rhetorical moves and steps in four sections of research article (IMRD) in two disciplines of AL and CH as representatives of soft and hard science disciplines, respectively.

1.4 Purpose of the Study

The main intention in this study was to investigate two disciplines of Applied Linguistics and Chemistry as representatives of soft and hard sciences, to reveal cross disciplinary differences in terms of rhetorical moves. In order to do that, each of the disciplines was first investigated based on analyzing the IMRD sections in AL and CH RAs, and examining the IMRD units in AL and CH abstracts. Then a comparison of the rhetorical moves of RAs and abstracts was carried out in order to identify the similarities and differences of these two independent genres in each discipline and across disciplines.

Given the diverse attention to the state of research in this area, the researcher of this study embarked on an investigation to examine the structures of the abstracts in order to examine the extent they mirror the IMRD structure and the kind of variations they may follow in terms of their development. The reason for choosing two related genres, RA

and abstract, in the present study is spearheaded by Swales' (1993) claim. He accounts that the abstract as an independent discourse, has distinctive functions and he postulates that an abstract indicates the content and structure of the whole text. He also points out that to the format of the abstract is Introduction, Method, Results, and Discussion (IMRD), which is similar to that of the main article. In other words, he claims that abstract structure is a mirror of the whole structure of RA and researchers need to follow the pattern for their abstract writing. This is one of the reasons for this study, that is, to compare the structure of abstract with the whole article in terms of move analysis to explicate the IMRD structure in AL and CH articles. In tandem, the move patterns are also described. Additionally, the embedding of moves in rhetorical structure of abstracts is also discussed as part of text development. Figure 1 shows the framework of the research in which the comparisons of the rhetorical structures of RAs and abstracts in AL as well as CH articles and also between the IMRD structures for the AL and CH articles are illustrated.

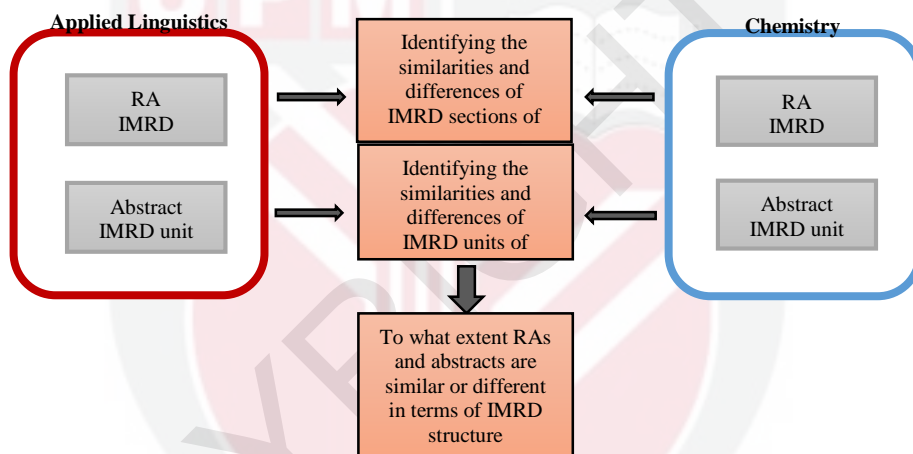


Figure 1.1: The Overall Framework of the Study

In general, the purpose of this study is to carry out move analyses of the overall RAs (IMRD) along with abstracts in AL and CH disciplines and also to identify the similarities and differences of the rhetorical structures of RAs in comparison with abstracts in each discipline. The linguistics realizations in each move were also analyzed in order to identify disciplinary variations in this study.

1.5 Research Questions

In line with the purposes of the present investigation, the following questions are posed:

- Q1. What are the rhetorical move structures of RAs (IMRD sections) in the fields of Applied Linguistics and Chemistry?
- Q2. What are the rhetorical move structures of abstracts (IMRD units) in the fields of Applied Linguistics and Chemistry?

- Q3. To what extent are RAs and abstracts similar or different in terms of the rhetorical move structure in the fields of Applied Linguistics and Chemistry?
- Q4. What are the linguistic realizations of the rhetorical moves in IMRD sections in the fields of Applied Linguistics and Chemistry?

1.6 Significance of the Study

Nowadays, a publication is the main medium for sharing new information among members of a scientific community. In this regard, advanced degree students, university faculty members, and practitioners from different academic disciplines are motivated to publish and disseminate their research findings in international journals. Thus, the expertise needed to be successfully involved in international professional communication is essential for academic and career growth.

Additionally, the number of academic journals is increasing and there has been a growing interest in the study of academic writing. As a result, to increase the international research cooperation, RAs play a vital role for the disseminating of knowledge among members of an academic community. Thus, one of the crucial abilities expected of scholars is to write articles in a manner that meets the requirement of the discourse communities. The awareness of genre writing is imperative especially in ESP. This research is anchored on the exploring of a specific genre deemed to be of great importance in the sharing of scientific information upon which knowledge is disseminated. Every academic member should be adept in this aspect and for ESL writers, it poses great challenges.

Thus, the awareness of communicative moves in GA studies plays an important role in helping the publishing of RAs and their accompanying abstracts. Existing literature reveals that in the past two decades there has been mounting evidence that success of academic writers in publishing their papers is highly related to their knowledge of generic structure of RAs (Hopkins & Dudley-Evans, 1988; Swales, 1990; Bhatia, 1993; Samraj, 2002, 2005; Fallahi and Erzi, 2003). Therefore, move analysis as an important aspect of GA, has been found to be very insightful to both ESP and EAP fields (Bhatia, 2001). Findings of this study embody the detailing of the whole structure of high prestigious articles in the fields of Applied Linguistics and Chemistry. This is expected to provide generalizable results of use to novice writers, whose academic writing inevitably needs to be developed in order to meet international research community expectations.

The degree of competitiveness is increasingly growing for disseminating the results of RAs among the members of the disciplinary communities. So, publishing scientific papers is more pressing for contemporary scholars who need to achieve professional advancement and meet the expectations of the editors and reviewers of International journals to get acceptance for publishing their papers. In addition, the present study provides new and insightful views into the evolutionary writing practices of academic publication.

In the present research, the major reason behind selecting and focusing on RAs as a genre of communication in academic discourse community is pertinent to the extensive consideration that a RA receives as a means of producing and contributing knowledge,

and in the event also creating research space (Hyland, 2000; and Swales, 1990, 2004). In this view, novice researchers especially, must have the capability of publishing articles in well-known international journals. These journals give much attention to minute details and are stringent in their evaluation. Therefore, reviewers and editors play the role of gatekeepers to either accept or reject an article for publication.

1.7 Scope and delimitations of the Study

The scope of this study is analysing 40 RAs (20 from each discipline of Applied Linguistics and Chemistry). The disciplines are limited to only these two disciplines which are members of two different categories of the soft and the hard sciences. Applied Linguistics and Chemistry were selected on the assumption that these disciplines would be maximally different in terms of their content and language use. However, it is conceded that further research involving more disciplines would be needed to verify findings on cross-disciplinary variations.

The RAs selected were limited to those published in journals indexed in ISI Thomson Reuters. The rationale behind extracting articles from these journals is to have a corpus which offers a good representation of research articles produced by successful writers, or what Mauranen (1996) calls “good text” (p.213). The IMRD sections of RAs and abstracts were the main areas of analysis in this study. The purpose was to determine whether IMRD RAs included abstracts with IMRD structure. The linguistic realizations of the rhetorical moves were also analysed in Applied Linguistics and Chemistry. However, Due to topic generalization in M1 of the Introduction section and marginal usage of linguistic realizations in certain steps in the IMRD rhetorical moves, only those dominant linguistic realizations in the moves and steps were discussed in chapter 4 (for a more detailed explanation, see section 4.6).

1.8 Definitions of Key Terms

Adapted framework: The adapted framework refers to the framework which was revised from the composite framework. Based on the findings of the pilot study, some addition and deletion of moves were done to the framework so that the adapted framework will be more sensitive to the analysis of the rhetorical moves in the current study.

Composite framework: This framework was constructed based on the review of existing rhetorical move models (Swales, 1990; Peacock, 2011; Yang & Allison, 2003; and Dudley-Evans, 1994) in the literature. It serves as an initial framework for the analysis of the data of the pilot study so as to assess the comprehensiveness of the framework for the analysis of the rhetorical moves in the RAs of this study. As mentioned in the adapted framework above, the findings of the pilot study saw the addition and removal of certain moves in the composite framework to form the adapted framework.

Disciplinary communities: As cited in Hyland (2005), these are referred to as tribes (Becher, 1989), each with specific norms and conventions, classifications, bodies of knowledge, and ways of inquiry that shape a particular and separate culture (Swales,

1990). So, in this study the disciplinary communities would be the members of two disciplines of applied Linguistics and Chemistry.

Genre: In English for Specific Purposes (ESP) and English for Academic Purposes (EAP) research and practices, genre is mostly referred to as structured communicative events taken on by particular discourse communities whose members share broad communicative purposes. In the present study, research articles and abstracts are chosen as two independent genres.

Macro structure: This refers to the overall structure of a written text. In the present study, macro structure is used for the structure of abstracts as a whole. For instance, introduction, method, results, and discussion (IMRD) are the four units stated in an abstract's structure and these units are varied across disciplines.

Micro structure: This defines the constituent elements in text structure. In this study, each IMRD unit of abstracts constitutes smaller units that define the microstructure of abstracts. For instance, under the Introduction unit of abstracts, there are moves or steps which are frequently employed by the writers in different disciplines.

Research article: It is a specialized genre of the academia where findings of scientific inquiry are documented. Generally, it possess a rigid structure which is typically known as introduction, method, results, and discussion sections of RAs. This study also utilized research articles with IMRD structure in the soft and hard sciences.

Rhetorical moves: According to Swales (2004), a text representing a genre includes smaller units that construct a pattern. These units are known as "moves," and they sequenced in a particular order. Each move could possibly constitute sub-units which is known as "steps." A move or step has its own communicative function that can be identified by a set of linguistic features.

Soft and hard sciences: Becher (1989, 1994) grouped academic disciplines into soft and hard sciences. Soft science includes the disciplines in the humanities and social sciences such as Applied Linguistics, while hard science includes science disciplines such as Chemistry.

1.9 Summary

This chapter presented background information to familiarize the readers with the fundamental concepts such as ESP and EAP, community, discourse community, genre analysis, and move analysis in the context of RA and abstract writing. In addition, the gaps in the previous studies were discussed in the problem statement. Furthermore, the framework of the study was illustrated in Figure 1 in order to show the evolvement and sequence of research questions in the present study. The importance of conducting this study and the significance of the results obtained were also explained. Finally, the key terms in the present study are defined.

REFERENCES

- Adams-Smith, D. E. (1984). Medical discourse: Aspects of authors' comments. *The ESP Journal*, 3: 25-36.
- Adnan, Z. (2008). Discourse structure of Indonesian research article introductions in selected hard science. In S. Burgess, & P. Martín-Martín (Eds.), *English as an additional language in research publication and communication* (pp. 39–64). Berlin: Peter Lang.
- Ahmad, U. (1997). Scientific research articles in Malay: a situated discourse analysis. Unpublished doctoral dissertation, University of Michigan, Ann Arbor.
- Anderson, K. & Maclean, J. (1997). A genre analysis study of 80 abstracts. *Edinburgh Working Papers in Applied Linguistics*, 8: 1–23.
- Anthony, L. (1999). Writing research article introductions in software engineering: How accurate is a standard model? *IEEE Transactions on Professional Communication*, 42: 38-46.
- Araujo, A. D. (2010). Mapping genre research in Brazil: An exploratory study. In C. Bazerman, R. Krut, K. Lunsford, S. Mcleod, S. Null, P. Rogers & A. Stansell (Eds.), *Traditions of writing research* (pp.44-57). London: Routledge.
- Arulandu, M. (2006). *A Genre Analysis of Masters and Doctoral Dissertation Introductions in the Sciences and Social Sciences* (Masters thesis). Universiti Putra Malaysia.
- Arvay, A. & Tanko, G. (2004). A contrastive analysis of English and Hungarian theoretical research article introductions. *International Review of Applied Linguistics*, 42(1), 71-100.
- Askehave, I. & Swales, J. M. (2001). Genre identification and communicative purpose: A problem and possible solution. *Applied Linguistics*, 22: 195-212.
- Atkinson, P. (1996). *Sociological readings and re-readings*. Aldershot, Hants: Avebury.
- Averill, B. A. & Eldredge, P. (2015). *General Chemistry: Principles, Patterns, and Applications*. Washington, DC: Saylor Academy.
- Basterkman, H. (2012). A genre-based investigation of discussion sections of research articles in Dentistry and disciplinary variation. *Journal of English for Academic Purposes*, 11: 134-144.
- Basturkmen, H., & Bitchener, J. (2005). The text and beyond: Exploring the expectations of the academic community for the discussion of results section of Masters Theses. *New Zealand Studies in Applied Linguistics*, 11(1): 1-20.
- Bazerman, C. (1988). *Shaping written knowledge: The genre and activity of the experimental article in science*. Madison: The University of Wisconsin Press.
- Bazerman, C. (1994). Systems of genres and the enactment of social intentions. In A. Freedman & P. Medway (Eds.), *Genre and the new rhetoric* (pp. 79–101). London: Taylor & Francis.

- Beaufort, A. (1999). *Writing in the real world: Making the transition from school to work*. New York: Teachers College Press.
- Becher, T. (1989). *Academic tribes and territories: Intellectual enquiry and the cultures of disciplines*. Milton Keynes, England: Society for Research into Higher Education and Open University Press.
- Belcher, D. (2009). What ESP is and can be: An introduction. In D. Belcher (Ed.), *English for Specific Purposes in Theory and Practice* (pp. 1 – 20). Ann Arbor, MI: University of Michigan Press.
- Berkenkotter, C. & Huckin, T. (1994). *Genre knowledge in disciplinary communication*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Berkenkotter, C. & Huckin, T.N. (1995). *Genre knowledge in disciplinary communication: Cognition/culture/power*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Bhatia, V. K. (1993). *Analyzing genre: Language use in professional setting*. London and New York: London Group.
- Bhatia, V. K. (1997). Genre-mixing in academic introductions. *English for Specific Purposes*, 16: 181-195.
- Bhatia, V.K. (2001). Analyzing genre: Some conceptual issues. In M. Hewings (Ed.), *Academic writing context* (pp. 79-92). Birmingham: University of Birmingham.
- Bhatia, V. K. (2004). *Worlds of written discourse: A genre-based view*. London: Continuum.
- Biber, D. (1988). *Variation across speech and writing*. Cambridge, UK: Cambridge University Press.
- Biber, D., Connor, U., Upton, T. A., & Kanoksilapatham, B. (2007). Introduction to move analysis. In D. Biber, U. Connor, & T. A. Upton (Eds.), *Discourse on the move: Using corpus analysis to describe discourse structure* (pp. 23–41). Philadelphia, PA: John Benjamins.
- Bloor, M. (1998). Variations in the methods sections of research articles across disciplines: The case of fast and slow text. In P. Thompson (Ed.), *Issues in EAP writing, research and instruction* (pp. 84-106). Reading, UK: CALS, the University of Reading.
- Blue, G. (1988). Individualizing academic writing tuition. In P. C. Robinson (Ed.), *Academic writing: Process and product* (pp. 95-99). London: Modern English Publications.
- Bonn, S. V., & Swales, J. M. (2007). English and French journal abstracts in the language sciences: Three exploratory studies. *Journal of English for Academic Purposes*, 6(2): 93-108.
- Breeze, R. *They say, we do: writers' strategic positioning in the discourses of political communication research*. InterLAE Conference, Jaca. 11-13 December 2008.

- Brett, P. (1994). A genre analysis of the result sections of sociology articles. *English for Specific Purposes*, 13(1): 47-56.
- Bruce, I. (2008). Cognitive genre structures in methods sections of research articles: A corpus study. *Journal of English for Academic Purposes*, 7(1): 38-54.
- Bunton, D. (1998). *Linguistic and Textual Problems in PhD. and M. Phil Theses: An Analysis of Genre Moves and Metatext* (Unpublished PhD Thesis). University of Hong Kong.
- Busa, M. (2005). The use of metadiscourse in abstracts: A comparison between Economics and Psychology abstracts. In J. Bamford & M. Bondi (Eds.), *Dialogue within Discourse Communities* (pp. 3-47). Niemeyer: Tübingen.
- Canagarajah, A. S. (2010). Internationalizing knowledge construction and dissemination. *The Modern Language Journal*, 94: 661-664.
- Chang, Y.Y., & Swales, J. (1999). Informal elements in English academic writing: threats or opportunities for advanced non-native speakers? In C. Candlin, & K. Hyland (Eds.), *Writing: Texts, processes and practices* (pp. 145-167). London: Longman.
- Cheng, A. (2008). Analyzing genre exemplars in preparation for writing: The case of an L2 graduate student in the ESP genre-based instructional framework of academic literacy. *Applied Linguistics*, 29(1): 50-71
- Coffey, B. (1984). ESP-English for specific purposes. *Language Teaching*, 17 (1): 2-16.
- Comrie, B. (1985). *Tense*. London: Cambridge University Press.
- Connor, U. & Mauranen, A. (1999). Linguistic analysis of grant proposals: European union research grants. *English for Specific Purposes*, 18(1): 47-62.
- Connor, U., Nagelhout, E., & Rozycki, W. V. (2008). *Contrastive rhetoric: Reaching to intercultural rhetoric*. Philadelphia, PA: John Benjamins Publishers.
- Crookes, G. (1986). Towards a validated analysis of scientific text structure. *Applied Linguistics Journal*, 7(1): 57-70
- Crossley, S. (2007). A chronotopic approach to genre analysis: An exploratory study. *English for Specific Purposes*, 26: 4-24.
- Cutting, J. (2012). Vague language in conference abstracts. *Journal of English for Academic Purposes*, 11: 283-293.
- Dahl, T. (2004). Some characteristics of argumentative abstracts. *Akademisk Prosa*, 2: 49-69.
- Devitt, A. (1991). Intertextuality in tax accounting: Generic, referential, and functional. In C. Bazerman & J. Paradis (Eds.), *Textual dynamics of the professions* (pp. 336-357). Madison, WI: University of Wisconsin Press.
- Devitt, A. J. (2004). *Writing genres*. Carbondale IL: Southern Illinois University Press.
- Dindaeng, R. (2009). *English abstracts in applied linguistics and applied mathematics: A comparative analysis of rhetorical moves* (MA thesis). National Institute of Development Administration, Thailand.

- Dudley-Evans, T. (1994). Genre analysis: An approach to text analysis for ESP. In M. Coulthard (Ed.), *Advances in written text analysis* pp. 219–228. London: Routledge.
- Dudley-Evans, T. (1997). Genre models for the teaching of academic writing to second language speakers: Advantages and disadvantages. In T. Miller (Ed.), *Functional approaches to written text: Classroom applications* (pp. 150-159). Washington, DC: USIA.
- Dudley-Evans, T., & St. John, M. J. (1998). *Developments in English for specific purposes*. Cambridge, England: Cambridge University Press.
- Dudley-Evans, T. (2000). Genre analysis: A key to a theory of ESP? *Ibérica*, 2: 3-11.
- Fairclough, N. (2003). *Analyzing Discourse: Textual Analysis for Social Research*. London: Routledge.
- Fallahi, M. M., & Erzi, M. (2003). Genre analysis in language teaching: An investigation of the structure of the discussion section of language-teaching- journal articles. *Iranian journal of applied linguistics*, 6(1): 69-81.
- Farjami, H. (2013). A Corpus-Based Study of the Lexical Make-up of Applied Linguistics Article Abstracts Keywords : abstracts, applied linguistics, AWL, frequency, GSL, lexical. *The Journal of Teaching Language Skills*, 5(2): 27–50.
- Flowerdew, J. (2005). An integration of corpus-based and genre-based approaches to text analysis in EAP/ESP: Countering criticisms against corpus-based methodologies. *English for Specific Purposes*, 24: 321-332.
- Flowerdew, J. (2011). Reconciling contrasting approaches to genre analysis: The whole can equal more than the sum of the parts. In D. Belcher, A. M. Johns & B. Paltridge (Eds.), *New directions in English for specific purposes research* (pp.119-144). Ann Arbor, MI: University of Michigan Press.
- Flowerdew, J. & Peacock, M. (2001). The EAP curriculum: Issues, methods and Challenges. In J. Flowerdew & M. Peacock (Eds), *Research Perspectives on English for Academic Purposes* (pp. 177-194). Cambridge: Cambridge University Press.
- Ghadessy, M. (1999). Textual features and contextual factors for register identification. In M. Ghadessy (Ed.) *Text and Context in Functional Linguistics* (pp. 125-139). Amsterdam, Philadelphia: John Benjamins B.V.
- Gillaerts, P., & Van de Velde, F. (2010). Interactional metadiscourse in research article abstracts. *Journal of English for Academic Purposes*, 9(2): 128-139.
- Golebiowski, Z. (2009). Prominent messages in Education and Applied Linguistic abstracts: How do authors appeal to their prospective readers?, *Journal of Pragmatics*, 41(4): 753-769
- Graetz, N. (1985). Teaching EFL students to extract structural information from abstracts. In J. M. Ulijn & A. K. Pugh (Eds.), *Reading for professional purposes: Methods and materials in teaching languages* (pp. 123-135). Leuven, Belgium: Acco.

- Halliday, M., Macintosh, A., & Stevens, P. (1964). *The linguistic sciences and language teaching*. London: Longman.
- Hammond, J. & Derewianka, B. (2001). Genre. In R. Carta & D. Nunan (Eds.), *Cambridge Guide to TESOL* (pp. 186-193). Cambridge: Cambridge University Press.
- Harris, Z. S. (1952). Discourse Analysis. *Language*, 28(1): 1-30.
- Hartley, J. (2003). Improving the clarity of journal abstracts in psychology: The case for structure. *Science Communication*, 24 (3): 366-379.
- Henry, A., & Roseberry, R. L. (1997). An investigation of the functions, strategies and linguistic features of the introductions and conclusions of essays. *System*, 25: 479-495.
- Hirano, E. (2009). Research article introductions in English for specific purpose: A comparison between Brazilian Portuguese and English. *English for Specific Purposes*, 28, 240-250.
- Holmes, R. (1997). Genre analysis and the social sciences: An investigation of the structure of RAs discussion sections in three disciplines. *English for Specific Purposes*, 16(4): 321-337.
- Hopkins, A. & Dudley-Evans, A. (1988). A genre-based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes*, 7: 113-122.
- Huckin, T. N. (2001). Abstracting from abstracts. In M. Hewings (Ed.), *Academic writing in context*. Birmingham: University of Birmingham Press.
- Huckin, T. (2006). Abstracting from abstracts. In M. Hewings (Ed.), *Academic Writing in Context* (pp. 93-103). London: Continuum.
- Hunston, S. (2002). Pattern grammar, language teaching, and linguistic variation. In R. Reppen, S. M. Fitzmaurice & D. Biber (Eds.), *using corpora to explore linguistic variation* (pp. 167-183). Amsterdam: John Benjamins.
- Hutchinson, T. & Waters, A. (1987). *English for Specific Purposes: A learning -centered approach*. Cambridge: Cambridge University Press.
- Hyland, K. (1999). *Writing: Texts, Processes and Practices*. London: Longman.
- Hyland, K. (2000). *Disciplinary discourses: Social interactions in academic writing*. Harlow: Longman.
- Hyland, K. (2002). Genre: Language, context and literacy. *Annual Review of Applied Linguistics* 22: 113-135.
- Hyland, K. (2004). *Disciplinary discourse: Social interactions in academic writing*. London: Pearson Educational Ltd.
- Hyland, K. (2005). *Metadiscourse*. London: Continuum.

- Hyland, K. (2006). *English for academic purposes: An advanced resource book*. Routledge.
- Hyland, K. (2008). Genre and academic writing in the disciplines. *Language Teaching*, 41: 543-562.
- Hyland, K. (2009). Writing in the disciplines: research evidence for specificity. *Taiwan International ESP Journal*, 1: 5-22.
- Hyland, K. (2012). *Disciplinary Identities: Individuality and Community in Academic Writing*. Cambridge: Cambridge Applied Linguistics.
- Hyland, K. & Tse, P. (2005). Hooking the reader: A corpus study of evaluative that in abstracts. *English for Specific Purposes*, 24: 123-139.
- Hyon, S. (1996). Genre in three traditions: Implications for ESL. *TESOL Quarterly*, 30(4): 693-722.
- Jalilifar, A. R. (2009). Thematic development in English and translated academic texts. *Journal of Language and Translation*, 10(1): 81-111.
- Jogthong, C. (2001). *Research article introductions in Thai: Genre analysis of academic writing* (Unpublished doctoral dissertation). West Virginia University, Morgantown.
- Johns, A. M. (1986). The ESL student and the revision process: Some insights from schema theory. *Journal of Basic Writing*, 5: 70-80.
- Johns, A. M. (1997). *Text, role, and context: Developing academic literacies*. Cambridge & New York NY: Cambridge University Press.
- Jordan, R. R. (1989). English for academic purposes (EAP). *Language Teaching*, 22 (3): 150- 162.
- Jordan, R. R. (1997). *English for academic purposes: A guide and resource book for teachers*. Cambridge, UK: Cambridge University Press.
- Kanoksilapatham, B. (2005). Rhetorical structure of biochemistry research articles. *English for Specific Purposes*, 24(3): 269-292.
- Kanoksilapatham, B. (2007). Rhetorical organisations of research article introductions in biochemistry and microbiology. *ESP Malaysia*, 13: 21-37.
- Kanoksilapatham, B. (2013). Generic characterization of civil engineering research article abstracts. *3L: The Southeast Asian Journal of English Language Studies*, 19: 1-10.
- Kaplan, R., Cantor, S., Hagstrom, C., Kamhi-Stein, L., Shiotani, Y., & Zimmerman, C. (1994). On abstract writing. *Text*, 14(3): 401-426.
- Karahan, P. (2013). Self-mention in scientific articles written by Turkish and non-Turkish authors. *Procedia-Social and Behavioral Sciences*, 70: 305-322.
- Kelly, G., & Bazerman, C. (2003). How students argue scientific claims: A rhetorical-semantic analysis. *Applied Linguistics*, 24: 28-55.
- Krathwohl, D. R. (1998). *Methods of educational and social science research: An integrated approach* (2nd ed.). New York: Longman.

- Kress, G., & van Leeuwen, T. (2001). *Multimodal discourse*. London: Arnold.
- Li, L., & Ge, G. (2009). Genre Analysis: Structural and Linguistic Evolution of the English-Medium Medical Research Article (1985–2004). *English for Specific Purposes*, 28: 93-104.
- Li, Y. (2011). *A genre analysis of English and Chinese research article abstracts in linguistics and chemistry* (Unpublished master's thesis). San Diego State University, California, the United States of America.
- Lim, J. M. H. (2006). Method sections of management research articles: A pedagogically motivated qualitative study. *English for Specific Purposes*, 25(3): 282-309.
- Lim, J. M. H. (2010). Commenting on research results in applied linguistics and education: A comparative genre-based investigation. *Journal of English for Academic Purposes*, 9: 280-294.
- Lindeberge, A. C. (2004). *Promotion and Politeness: Conflicting Scholarly Rhetoric in Three Disciplines*. Finland: A° bo Akademi University Press.
- Lores, R. (2004). On RA abstracts: From rhetorical structure to thematic organization. *English for Specific Purposes*, 23: 280-302.
- Martin, J. R. (1984). Language, register, and genre. In A. Burns & C. Coffin (Eds.), *Analyzing English in a global context* (pp.149-66). London: Routledge.
- Martin, J. R. & Rose, D. (2008). *Genre relations: Mapping culture*. London: Equinox.
- Martín, P. M. (2003). A genre analysis of English and Spanish research paper abstracts in experimental social sciences. *English for Specific Purposes*, 22: 25-43.
- Martín, P.M. (2005). *The rhetoric of the abstract in English and Spanish scientific discourse*. Bern: Peter Lang.
- Mauranen, A. (1996). Discourse-competencies-evidence from thematic development in native and non-native texts. In E. Ventola & A. Mauranen (Eds.), *Academic writing: Intercultural and textual issues* (pp.195-230). Amsterdam: Benjamins.
- McCarthy, M. (1991). *Discourse analysis for language teachers*. Cambridge: Cambridge University Press.
- McNab, S. M. (1990). Writing an abstract: the supreme test, particularly for scientists to whom English is a foreign language. *European Science Editing*, 39: 7–9.
- Melander, B., Swales, J., & Fredrickson, K. (1997). Journal abstracts from three academic fields in the United States and Sweden: National or disciplinary proclivities? In A. Duszak (Ed.), *Cultures and styles of academic discourse* (pp. 251–272). New York: Mouton de Gruyter.
- Meyer, B. J. F. (1985). Signaling the structure of text. In D. H. Jonassen (Ed.), *The technology of text* (pp. 64-89). Englewood Cliffs, NJ: Educational Technology Publications.

- Miller, C. R. (1984). Genre as social action. *Quarterly Journal of Speech*, 70: 151-167.
- Miller, C. R. (1994) Rhetorical community: the cultural basis of genre. In A. Freedman and P. Medway (Eds), *Genre and the New Rhetoric*. London: Taylor and Francis.
- Moreno, A. I. (2008). The importance of comparable corpora in cross-cultural studies. In Ulla Connor, E. Nagelhout, & W. Rozycki (Eds.), *Contrastive Rhetoric: Reaching to Intercultural rhetoric* (pp. 25-41). Amsterdam: John Benjamins.
- Nunan, D. (1993). *Introducing discourse analysis*. London: Penguin
- Nwogu, N. K. (1997). The medical research paper: Structure and functions. *English for Specific Purposes*, 16 (2): 119-138.
- Ozturk, I. (2007). The textual organization of research article introductions in applied linguistics: Variability within a single discipline. *English for Specific Purposes*, 26: 25-38.
- Paltridge, B. (1994). Genre analysis and the identification of textual boundaries. *Applied Linguistics*, 15: 288-299.
- Paltridge, B. (2006). *Discourse analysis: An introduction*. London: Continuum.
- Paltridge, B., Starfield, S., Ravelli, L. J., & Tuckwell, K. (2012). Change and stability: Examining the macrostructures of doctoral these in the visual and performing arts. *Journal of English for Academic Purposes*, 11: 332-334.
- Parodi, G. (2009). Written Genres in university studies: Evidence from a Spanish Corpus in Four Disciplines. In C. Bazerman, A. Bonini, D. Figueiredo (Eds.) *Genre in a changing world* (pp. 483-501). Parlor Press and WAC Clearinghouse.
- Peacock, M. (2002). Communicative moves in the discussion section of research articles. *System*, 30: 479-497.
- Peacock, M. (2011). The structure of the methods section in research articles across eight disciplines. *Asian ESP Journal*, 7(2): 99-124.
- Peng, J. (1987). Organizational in chemical engineering research articles. *Empirical Language Research*, 1: 315-331.
- Pho, P. D. (2008). Research article abstracts in applied linguistics and educational technology: a study of linguistic realizations of rhetorical structure and authorial stance. *Discourse Studies*, 10(2): 231-250.
- Posteguillo, S. (1999). The schematic structure of computer science research articles. *English for Specific Purposes*, 18(2): 139-160.
- Ren, H. & Li, Y. (2011). A comparison study of the rhetorical moves of abstracts in published research articles and master's foreign language theses. *English Language Teaching*, 4(1): 162-166.

- Reppen, R. & Simpson, R. (2004). Corpus linguistic. In N. Schmitt (Ed.). *An Introduction to Applied Linguistics* (pp. 92-111). London: Arnold.
- Sabariah, M. R., & Rafik-Galea, S. (2005). Designing test specifications for assessing ESL writing skills in English for academic purposes. In S. H. Chan & M. E. Vethamani (Eds.), *ELT concerns in assessment* (pp. 149-167). Petaling Jaya: Sasbadi Sdn. Bhd.
- Saboori, F., & Hashemi, M. R. (2013). A cross-disciplinary move analysis of research article abstracts. *International Journal of Language Learning and Applied Linguistics World*, 4(4): 2289-2737.
- Salager-Meyer, F. (1990). Discoursal flaws in medical English abstracts: A genre analysis per research- and text-type. *Text*, 10: 365-384.
- Salager-Meyer, F. (1992). A text-type and move analysis study of verb tense and modality distribution in medical English abstracts. *English for Specific Purposes*, 11(2): 93-113.
- Samraj, B. (2002). Introductions in research articles: Variations across disciplines. *English for Specific Purposes*, 21(1): 1-17.
- Samraj, B. (2005). An exploration of a genre set: Research article abstracts and introductions in two disciplines. *English for Specific Purposes*, 24: 141-156.
- Santos, M. B. D. (1996). The textual organization of research paper abstracts in applied linguistics. *Text*, 16(4): 481-99.
- Sauperl, A., Klasinc, J. & Luzar, S. 2008. Components of abstracts: logical structure of scholarly abstracts in pharmacology, sociology, and linguistics and literature. *Journal of the American Society for Information Science and Technology*, 59:1420-1432.
- Schiffrin D., Tannen, D., & Hamilton, H. (2003). *The Handbook of Discourse Analysis*. Oxford: Blackwell.
- Shehzad, W. (2010). Announcement of the principal findings and value addition in computer science research papers. *Ibérica*, 19: 97-118.
- Sinclair, J. (2001). Preface. In M. Ghadessy, A. Henry & R. L. Roseberry (Eds.), *Small Corpus Studies and ELT* (pp. vii-xv). Amsterdam: John Benjamins.
- Stoller, F. L., & Robinson, M. S. (2013). Chemistry journal articles: An interdisciplinary approach to move analysis with pedagogical aims. *English for Specific Purposes*, 32: 45-57.
- Stotesbury, H. (2003). Evolution in research article abstracts in the narrative and hard sciences. *Journal of English for Academic Purposes*, 2: 327-341.
- Stotesbury, H. (2006). Gaps and False Conclusions: Criticism in Research Article Abstracts across the Disciplines. In K. Hyland, & M. Bondi (Eds), *Academic discourse across disciplines* (pp. 123-148). New York: Peter Lang.

- Stevens, P. (1988). ESP after twenty years: A re-appraisal. In M. Tickoo (Ed.), *ESP: State of the Art* (pp. 1-13). Singapore: SEAMEO Regional Centre.
- Suntara, W., & Usaha, S. (2013). Research article abstracts in two related disciplines: Rhetorical variation between linguistics and applied linguistics. *English Language Teaching*, 6(2): 84.
- Swales, J. M. (1981). *Aspects of article Introductions*. Birmingham, UK: University of Aston.
- Swales, J. M. (1985). *Episodes in ESP*. Oxford: Pergamon Institute of English.
- Swales, J. M. (1986). A genre-based approach to language across the curriculum. In M. L. Tickoo (Ed.), *Language across the curriculum* (pp.10-20). Anthology Series 15. Singapore: SEAMEO Regional Language Center.
- Swales, J. & Najjar, H. (1987). The Writing of Research Article Introductions. *Written Communication*, 2(4): 175-191.
- Swales, J. M. (1990). *Genre analysis. English in academic and research settings*. Cambridge: Cambridge University Press.
- Swales, J. M. (1993). The English language and its teachers: Thoughts past, present, and future. *English Language Teacher Journal*, 47: 283 – 91.
- Swales, J. M. (1998). *Other floors, other voices: A textography of a small university building*. Mahwah, NJ: Lawrence Erlbaum Publishers.
- Swales, J. M., & Feak, C. B. (1994). *Academic writing for graduate students: essential tasks and skills*. Ann Arbor: University of Michigan Press.
- Swales, J. M. (1996). Occluded genres in the academy: The case of the submission letter. In E. Ventola & Mauranen, A. (Eds), *Academic writing: Intercultural and textual issues* (pp.45-58). Amsterdam: John Benjamins
- Swales, J., & Feak, C. (2000). *English in today's research world: A writing guide*. Ann Arbor: University of Michigan Press.
- Swales, J. M. (2004). *The Manuscript version of chapter seven of research genres: Explorations and application*. Cambridge: Cambridge University Press.
- Swales, J. M. (2007). Discourse communities, genres and English as an international language. *World Englishes*, 7(2): 211-220.
- Swales, J. M. (2012). A text and its commentaries: Toward a reception history of 'Genre in three traditions' (Hyon 1996). *Ibrica*, 24: 103-116.
- Swales, J. M. & Feak C. B. (2009). *Abstracts and writing of abstracts*. Ann Arbor: University of Michigan Press.
- Tardy, C. M. (2008). Multimodality and the teaching of advanced academic writing: A genre systems perspective on speaking-writing connections. In A. Hirvela & D. Belcher (Eds.), *The oral/literate connection: Perspectives on L2 speaking, writing, and other media interactions* (pp.191-208). Ann Arbor, MI: University of Michigan Press.
- Thompson, D. (1993). Arguing for experimental "facts" in science. A study of research article results section in biochemistry. *Written Communication*, 19 (1): 106-128.

- Tseng, F. P. (2011). Analyses of move structure and verb tense of research article abstracts in applied linguistics journals. *International Journal of English Linguistics*, 1(2): 27-39
- Van Dijk, T. (1977). *Text and Context*. London: Longman.
- Vygotsky, L. (1978). *Mind in Society*. London: Harvard University Press.
- Wei, Z., & Flaitz, J. (2005). Using focus group methodology to understand international students' academic language needs: A comparison of perspectives. *TESL-EJ*, 8(4).
- Weissberg, R. & Buker, S. (1990). *Writing up research*. Englewood Cliffs, NJ: Prentice Hall.
- Wignell, P. (1998). Technicality and abstraction in social science. In J. Martin & R. Veel (Eds.), *Reading science: Critical and functional perspectives on discourses of science* (pp. 297-326). London: Routledge.
- Williams, I. A. (1999). Results sections of medical research articles: Analysis of rhetorical categories for pedagogical purposes. *English for Specific Purposes*, 18(4): 347-366.
- Wood, A. S. (1982). An examination of the rhetorical structures of authentic chemical texts. *Applied Linguistics*, 3(2): 121-143.
- Woodward-Kron, R. (2005). The role of genre and embedded genres in tertiary students' writing. *Prospect*, 3: 24-41.
- Yang, R., & Allison, D. (2003). Research articles in applied linguistics: moving from results to conclusions. *English for Specific Purposes*, 22, 365-385.
- Yang, R., & Allison, D. (2004). Research articles in applied linguistics: structures from a functional perspective. *English for Specific Purposes*, 23(3): 264-279.
- Ypsilandis, G.S. & Kantaridou, Z. (2007). English for academic purposes: Case studies in Europe, *Revista de Lingüística y Lenguas Aplicadas*, 2: 69-83.
- Zhang, Z. (2012). Teaching Business English. In C. A. Chapelle (Ed.), *The Encyclopedia of Applied Linguistics*. Boston, MA: Wiley - Blackwell.
- Živkovič, S. *Constructivism – An Emerging Trend in ESP Teaching and Learning*. International Conference Language, Literature and Culture in Education, Nitra, Slovakia. 2014.