RESEARCH REPORT

A COMPARATIVE STUDY OF ENGLISH DISCUSSION SECTIONS BETWEEN APPLIED LINGUISTICS AND SCIENCE AND TECHNOLOGY JOURNALS PUBLISHED IN THAILAND: A CORPUS ANALYSIS PERSPECTIVE

TIRANUN WONGWIWAT

THIS RESEARCH HAS BEEN SUPPORTED BY

SRIPATUM UNIVERSITY IN THE 2560

ACADEMIC YEAR

Research Title : A comparative study of English discussion sections between applied linguistics and science and technology journals published in Thailand: A corpus analysis perspective

Name of Researcher : Mrs. Tiranun Wongwiwat

Name of Institution : Sripatum University

Year of Publication : B. E. 2563

ABSTRACT

The purpose of this study was to examine the rhetorical move patterns and obligatory and optional moves of English discussion sections in international journals of Applied Linguistics and those of Science and Technology published in Thailand. The corpus consisted of 60 discussion sections of four Applied Linguistics journals and 60 discussion sections of four Science and Technology journals during the period 2013-2017. Applied Linguistics journals had 71,576 words in total with an average of 1,193 words whereas Science and Technology journals contained 38,360 words with an average of 639 words. The analysis framework used in this study was Yang and Allison's (2003) move model. The model consisted of 7 moves and 10 steps. The findings showed some differences in the move structure of Applied Linguistics journals and Science and Technology journals. Both data sets showed the same three obligatory moves-- *Move 1 (Background information)*, *Move 2 (Reporting results)*, *Move 4 (Commenting on results)*-- and three optional moves-- Move 3 *(Summarizing the study)*, *Move 5 (Summarizing the study)*, *Move 6 (Evaluating the study)*, *Move 7 (Deductions from the research)*.

Keywords: English discussion sections, corpus analysis, move patterns, obligatory move, optional move

ACKNOWLEDGEMENTS

I would never have been able to finish my research without the encouragement and support from my family. I am profoundly indebted to Asst. Prof. Dr. Saneh Thongrin, research advisor. She was very generous with her time and knowledge and assisted me in each step to complete the research.

Tiranuan Wongwiwat

July 2563

TABLE OF CONTENTS

Chapter **Page**

LIST OF TABLES

Table **Page**

Table **Page**

LIST OF FIGURES

Figure **Page**

ABBREVIATIONS

AL	Applied linguistics
EAP	English for Academic Purposes
ESP	English for Specific Purposes
M	Move
PA	Percentage of agreement
S	Step
ST	Science and technology

CHAPTER I

INTRODUCTION

1.1 Rational of the research

Nowadays, English has become an international and working language in the Southeast Asian context (Kanokilpatham, 2012; Kirkpatrick, 2012). Obviously, it plays a very crucial role in various sectors including academic and professional settings. It is widely used as the medium of communication and instruction in various contexts. As to academia, graduate students, researchers and scholars are inevitably required to possess a good command of using all four language skills of English. They need to be proficient in writing English research articles to disseminate their research findings with other scholars and researchers as a part of their career advancement and promotion and their graduation requirement. However, one problematic aspect that novice scholars and non-native speakers of English would probably face is how to create an effective research article to meet the demand of reviewers and discourse community. They are required to write an effective research article to compete with others to be published. Scholars can show that they effectively and efficiently participate in academia and discourse communities through their ability of using the English language (Kanokilpatham, 2012). The ability to produce languages in specific academic genres and registers to meet the expectation of scholars in discourse communities should not solely be based on the linguistic or grammatical competence but also on the recognition of specific genre and the rhetorical patterns of a target discourse. The importance of genre in writing and the awareness of genre to enhance the learners' proficiency in the target language have been focused in a number of empirical research studies (Cao &Guo, 2015; Henry & Roseberry, 2009; Hyland, 2007, 2008; Martín-Martín (2013); Skulstad (1999); Varaprasad, 2013; Yang, 2011). Genre analysis illustrates the author's communicative purposes

in target discourse across different disciplines and should be implemented in teaching of ESP, especially academic writing (Dudley-Evans, 2000).

One of the major obstacles that novice writers and researchers with limited experience in writing research articles usually face is appropriate components of discussion parts. Discussion sections are obviously an essential part in research articles that should not be overlooked. However, they have been paid little attention and there has been little investigation of their move patterns as compared to other sections--introduction, review of literature, research methodology and results-- in research articles.

Due to the importance of discussion sections in research articles and the lack of empirical research studies on this genre in Thai context, the study aims to explore generic features of discussion parts in international journals of Applied Linguistics and Science and Technology published in Thailand. The analysis includes the investigation of number of words per each discussion section, the first person pronoun to show authors' identities and recurrent word choices of moves and steps.

1.2 Purposes of the study

The study has two objectives as follows:

1) To study whether rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand are similar to or different from those of Science and Technology.

2) To study obligatory and optional moves found in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand.

1.3 Research questions

The research aims at answering the following research questions:

1) How are rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand similar to or different from those of Science and Technology?

2) Which obligatory and optional moves are used in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand?

1.4 Significance of the research

The present study conveys rhetorical patterns and move frequency of discussion parts in international journals of Applied Linguistics and Science and Technology published in Thailand. These findings would be beneficial for non-native students, novice writers, researchers and instructors of second language writing courses and academic writing courses. They provide four significant advantages as follows:

1) The findings of the study would provide a clearer picture of how successful English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand are generally written.

2) The findings of the study would be valuable guidance to those, especially non-native English-speaking students and inexperienced writers, for composing more effective English discussion sections for either Applied Linguistics or Science and Technology international journals.

3) These findings would also enable non-native English-speaking students and inexperienced writers to recognize anticipated characteristics of English discussion sections in Applied Linguistics and Science and Technology journals while writing and reading research articles.

4) The findings would be pedagogically beneficial for course development and material design in EAP/ ESP writing and reading courses and other immediate training courses.

1.5 Definition of key terms

The definitions of key terms used in the study are listed in alphabetical order as follows:

1) **Corpus/corpora:** Collection of naturally occurring examples of a language which are used for linguistic study purposes

2) **Discourse community:** Group of people within a discipline or area of a special interest who communicate with one another through the genres that they belong to

3) **EAP:** English for Academic Purposes

4) **Emerging move:** New communicative purpose/move that are not included in the analyzing model and occur50-59% of a corpus

5) **ESP**: English for Specific Purposes

6) **Framework/Move model used in the study:** Yang and Allison's (2003) rhetorical move model for the analysis of discussion sections consisting of 7 moves --*Move 1(Background information)*, *Move 2 (Reporting results)*, *Move 3 (Summarizing results)*, *Move 4 (Commenting on results)*, *Move 5(Summarizing the study)*, *Move 6 (Evaluating the study)*and *Move 7(Deductions from the research*) and 10 steps -- *Move 4 Step 1(Interpreting results), Move 4 Step*

2 (Comparing results with literature), Move 4 Step 3 (Accounting for results) and *Move 4 Step 4 (Evaluating results), Move 6 Step 1(Indicating limitations), Move 6 Step 2 (Indicating significance/advantage)* and *Move 6 Step 3 (Evaluating methodology), Move 7 Step 1 (Making suggestions), Move 7 Step 2(Recommending further research)* and *Move 7 Step 3 (Drawing pedagogic implications*).

7) **Genre analysis:** Analysis on regularities of text structures to distinguish one type of text from another

8) **Generic features:** Moves, submoves/steps and move patterns

9) **International journal:** English journal listed in recognized citation database

10) **Move:** Functional term which refers to a defined and bounded communicative act designed to achieve a communicative objective

11) **Obligatory move:** Move occurring 60% or more than 60% of a corpus

12) **Optional move:** Move occurring less than 60% of a corpus

13) **Rhetorical pattern/ Rhetorical move pattern:** Communicative category representing the realization of a specific overall communicative purpose

14) **Submoves/ steps:** Different "aspects" of a move (Bhatia 1993: 57)

Overview

This research consists of five chapters. The overview of each chapter is as follows:

Chapter 1 Introduction

This chapter presents an overview of the study which covers rationale, purposes, research questions and significance of the study. The last part of this chapter provides definitions of key terms used in the study.

Chapter 2 Review of literature

This chapter covers the literatures related to move structures, move frequency and move models of discussion section.

Chapter 3 Research methodology

This chapter presents an overview of the research methodology. The areas covered in this chapter include: compilation and construction of a corpus (sample size, sampling process and data preparation), coding abbreviations and coding forms and analysis framework. This chapter also describes the *AntConc3.2.4W*concordance program for generating personal pronouns and the reliability assessment, inter-rater reliability and intra-rater reliability.

Chapter 4 Results

This chapter presents findings of the study. These findings include: the results on move pattern, the frequency of moves/steps, recurrent word choice of moves and personal pronouns. Some examples of moves and pronouns in their contexts are also included.

Chapter 5 Discussion and recommendations

This chapter outlines a conclusion of this study in four parts. The first part provides a research summary. The second part sums up research findings. The other two parts of this chapter are discussion and implications and recommendations for further studies.

CHAPTER II

REVIEW OF LITERATURE

This chapter reviews the literatures related to the identification of move and move model of discussion sections. It consists of two main sections: (1) research studies on rhetorical patterns of discussion sections and (2) move models for analyzing discussion sections.

2.1 Research studies on rhetorical patterns of discussion sections

The aim of move structure analysis is to categorize parts of texts by their communicative purposes (Flowerdew, 2005).Move analysis was first developed by Swales (1981) to explore the generic structure of research articles for their moves and steps. He later proposed CARS model which contain 3 moves --*Move 1(Establishing a territory), Move 2 (Establishing a niche)*and *Move 3(Occupying the ni*che*)* and 11 steps-- (*Move 1 Step 1(Claiming centrality) and/or, Move 1Step 2(Making the topic generalization) and/or, Move 1 Step 3(Reviewing items of previous research), Move 2 Step 1A(Counter-claiming), Move 2 Step 1B(Indicating a gap), Move 2 Step 1C(Question raising), Move 2 Step 1D(Continuing a tradition), Move 3 Step 1A(Outlining purposes), Move 3 Step 1B(Announcing present research), Move 3 Step 2 (Announcing principle findings), Move 3 Step 3(Indicating research article structure)*. Various genres and different parts of research articles have been widely and continuously investigated to convey the underlying generic structures. One of them is the discussion section in research articles.

Researchers and scholars have investigated discussion sections.

Atai and Falah (2004) investigated research articles written by native English writers and native Persian writers. The findings revealed that *Move 2 (Reporting results)* and *Move 1 (Background information)* were frequently used in both English and Persian research articles. *Move 4 Step 4 (Evaluating Results)*, *Move6 Step 2 (Indicating significance or advantage)*and *Move 6 Step 3 (Evaluating Methodolog*y) were not identified in both corpora.

Amnuai (2017) studied the move found in 20 discussion sections in English research articles in the field of accounting with Yang and Allison's (2003) move model. The texts were taken from two international journals, *Accounting, Organizations and Society* and *Management Accounting Research*. *Move 2 (Reporting results)* and *Move 4 (Commenting on results)* were obligatory moves. *Move 1(Background information)* and *Move 7(Deductions from the research)* were conventional moves. *Move 3(Summarizing results), Move 5(Summarizing the study)* and *Move 6 (Evaluating the study)* were optional.

Amnuai and Wannaruk (2013) explored the rhetorical move pattern in 30 English research articles written by Thai and 30 texts written by international writers with Yang and Allison (2003). The findings showed that in both data sets *Move 4 (Commenting on results)* was the most prevalent communicative function followed by *Move 2(Reporting results)*.

Dobakhti (2016) studied qualitative research articles in Applied Linguistics from five high impact journals. Eleven moves were in the corpus. *Move 1 Step1 (Stating findings)* was found in all articles in the corpus, followed by *Move 3 (Commenting on findings).*

Dudley-Evans (1994) studied the rhetorical moves in research articles in natural sciences. He identified three parts in discussion sections, namely introduction, evaluation and conclusion and nine communicative functions -- *Move 1 (Information move), Move 2 (Statement of results), Move 3 (Finding), Move 4((Un)expected outcome), Move 5 (Reference to previous research), Move 6 (Explanation), Move 7 (Claim), Move 8 (Limitation)and Move 9 (Recommendation).*

Dujsik (2013) studied research articles published in five major peer-reviewed journals in applied linguistics. *Moves 2: Finding* and *Move 4 (Reference to previous Research)* were obligatory. *Move 1(Information move)*, *Move 5(Explanation for expected or unexpected results)*, *Move 6 (Claim)* and *Move 8 (Recommendation)* were conventional. *Moves 3(Expected or expected outcome)* and *Move 7(Limitation)* were optional.

Fallahi and Erzi (2003) investigated seven journals (*Applied Linguistics*, *English for Specific Purposes*, *International Review of Applied Linguistics*, *Language Learning*, *The Modern Language Journal*, *Research in Teaching of English* and *TESOL Quarterly.* the findings showed that *Finding* move and the *Claim* move were the most frequent moves. The *Unexpected outcome* move was the least frequent move.

Holmes (1997) studied social science research articles from three fields, namely history, political science and sociology and found no obligatory moves.

Jalilifar et al. (2012) investigated discussion section in Applied Linguistics field of Iranian journals and international journals with Dudley-Evans's (1994) model. The findings

revealed the relatively low frequency of *Move 5(Reference to previous research)* in Iranian journals.

Kanoksilpatham (2005) explored the rhetorical structure of 60 biochemistry research articles published in five journals, *Cell*, *Molecular Cell, Molecular and Cellular Biology, Journal of Biological Chemistry and Molecular Biology of the Cell* (12 articles for each journal). She posited a four-move model --*Move 1 (Contextualizing the study), Move 2 (Consolidating results), Move 3 (Stating limitations of present study)and Move 4 (Suggesting further research*. Her frame work contained 11 steps-- *Move 1 Step 1 (Describing established knowledge), Move 1 Step 2 (Presenting generalizations, claims, deductions, or research gaps), Move 2 Step 1 (Restating methodology), Move 2 Step 2 (Stating selected findings), Move 2 Step 3(Referring to previous literature), Move 2 Step 4 (Explaining differences in findings), Move 2 Step 5 (Making overt claims or generalizations)* and *Move 2 Step 6(Exemplifying), Move 3Step 1 (Limitations about the findings), Move 3 Step 2(Limitations about the methodology)* and *Move 3 Step 3(Limitations about the claims made). Move 1, Move 2and Move 3* were conventional whereas *Move 4* was optional.

Kanoksilpatham (2012b) explored three engineering sub-disciplines—civil, software and biochemical. She identified the three-move model: *Move 1 (Review the present study), Move 2 (Consolidation of results)* and *Move 3 (State limitations and possible further studies)*.

Lewin, Fine and Young (2001) studied social science research articles and identified five moves in the discussion sections-- *Move 1(Report accomplishments), Move 2(Evaluate*

congruence of findings to other criteria), Move 3(Offer interpretation), Move 4(Ward off counterclaims) and *Move 5(State implications).*

Nguyen and Pramoolsook (2015) explored results-discussion chapters in TESOL Master's theses written by Vietnamese students. *Move 1 (Introducing the results chapter)* and *Move 2 (Reporting results)* were obligatory in the result chapter. *Move 3(Summarizing results)* and *Move 4 (Commenting on results)* occurred in the discussion chapter.

Nodoushan and Khakbaz (2011) analyzed Iranian MA graduates' theses. Obligatory moves were *Move 2 (Reporting results)*, *Move 4 (Commenting on results)* and *Move 7 (Deduction from research)*. Optional move was *Move 6 (Evaluating the study).*

Nwogu (1997) analyzed the move structures of 15 research articles in medical journals and posited a three-move framework for discussion--*Move 1 (Highlighting overall research outcome), Move 2 (Explaining specific research)* and *Move 3 (Stating research conclusion).* Move 2 had five steps: *Step 1 (Stating a specific outcome), Step 2 (Interpreting the outcome), Step 3 (Indicating the significance of the outcome), Step 4 (Contrasting present and previous outcomes)* and *Step 5 (Indicating limitations of outcomes). Move 3* is realized through two steps, *Step 1 (Indicating research implications)* and *Step 2 (Promoting further research).*

Peacock (2002) explored 252 research article discussions in seven fields—physics, biology, environmental science, business, language and linguistics, public and social administration and law—with Dudley-Evans's (1994) framework. The findings showed that the

most frequently used moves were *Move 7(Claim), Move 3 (Finding)* and *Move 5 (Reference to previous research)*; while *Move 6 (Explanation)* was rarely found.

Pojanapunya and Todd (2011) explored the discussion sections in Applied Linguistics research and proposed a seven-move scheme: *Move 1(Summarizing findings)*, *Move 2(Linking to literature about the research methodology)*, *Move 3 (Explaining reasons for the finding)*, *Move 4 (Conclusion to the field)*, *Move 5 (Linking to real world applications/ practical recommendations)*, *Move 6 (Discussing limitations of the study)* and *Move 7(Pointing for direction for future research).* The findings showed that *Move 3, Move 4, Move 5* and *Move 7* were obligatory whereas *Move 2* and *Move 6* were optional.

Postegello (1999) investigated research article discussions in Computer Sciences. The findings showed that the most frequent move was *Statement of results* whereas the least popular move was *Background information.* Recurrent cycle moves were the occurrence of *Move 2 (Statement of results)* followed by *Move 8 (Hypothesis and recommendation).*

Rasmeenin (2006) investigated discussion sections in Applied Linguistics written by Thai graduate students. The results revealed five obligatory moves: *Stating Background information*, *Reporting results*, *Summarizing results*, *Commenting on results* and *Deductions from the research*

Sithlaothavorn and Trakulkasemsuk, (2016) studied Thai and international journals in language learning and communication from 2009 to 2014. Moves in Thai and international journals were not different. The obligatory moves for Thai journals were *Move 2: Revisiting*

results and Move 4: Comparing results with literature. The obligatory moves for international journals were *Move 3 (Interpreting results) and Move 4(Comparing results with literature).* The optional moves were *Move 6 (Summarizing the study), Move 7 (Indicating limitations), Move 8 (Indicating significance), Move 9 (Evaluating methodology), Move 10 (Recommendations for further research)* and *Move 11 (Drawing pedagogical implication).*

Yang and Allison (2003) investigated 20 empirical research studies from four journals (*TESOL Quarterly, Applied Linguistics, English for Specific Purposes and English Language Teaching Journal*) in Applied Linguistics field and posited a seven-move pattern for the discussion section. The model contained 7 moves --*Move 1(Background information)*, *Move 2 (Reporting results)*, *Move 3 (Summarizing results)*, *Move 4 (Commenting on results)*, *Move 5(Summarizing the study)*, *Move 6 (Evaluating the study)* and *Move 7(Deductions from the research*) and 10 steps-- *Move 4 Step 1(Interpreting results), Move 4 Step 2 (Comparing results with literature), Move 4 Step 3 (Accounting for results)* and *Move 4 Step 4 (Evaluating results), Move 6 Step 1(Indicating limitations), Move 6 Step 2 (Indicating significance/advantage)* and *Move 6 Step 3 (Evaluating methodology), Move 7 Step 1 (Making suggestions), Move 7 Step 2 (Recommending further research)* and *Move 7 Step 3 (Drawing pedagogic implications*). *Move 4* was the most frequently occurring move.

Summaries of previous relevant research studies on the investigation of moves and move pattern in discussion sections are listed in alphabetical order as follows:

Table 2.1: Summary of previous studies

No.	Authors	Research focus	Findings
1.	Atai and Falah (2004)	Research articles written by native English writers and native Persian writers in the field of Applied Linguistics	*Move 2 (Reporting results)* and *Move 1 (Background information)* were frequent used both English and Persian research articles. *Move 4 Step 4 (Evaluating results)*, *Move 6 Step 2 (Indicating significance or advantage)* and *Move 6 Step 3 (Evaluating methodology)* were not identified in both corpora.
2.	Amnuai (2017)	RA discussion sections in the field of Accounting	*Move 2 (Reporting results)* and *Move 4 (Commenting on results)* were obligatory moves. *Move 1 (Background information)* and *Move 7 (Deduction from the research)* were conventional moves.
3.	Amnuai and Wannaruk (2013)	International corpus and Thai corpus written by Thai writers	The most frequent moves of both data sets were *Move 4(Commenting on results)* and *Move 2 (Reporting results)*, respectively.
4.	Dobakhti (2016)	Qualitative research articles in Applied Linguistics from five high impact journals	Eleven moves were in the corpus. *Move1 Step1 (Stating findings)* was found in all articles in the corpus, followed by *Move 3(Commenting on findings).*
5.	Dudley-Evans (1994)	Research articles in Natural Sciences	There were three parts in discussion sections, namely introduction, evaluation, and conclusion and nine moves --*Move 1 (Information move, Move 2 (Statement of*

No.	Authors	Research focus	Findings
			results), Move 3 (Finding), Move 4 ((Un)expected outcome), Move 5 (Reference to previous research), Move 6 (Explanation), Move 7 (Claim), Move 8 (Limitation) and *Move 9 (Recommendation).*
6.	Dujsik (2013)	Research articles published in five major peer-reviewed journals in Applied Linguistics	*Moves 2 (Finding)* and *Move 4 (Reference to previous research)* were obligatory. *Move 1 (Information move)*, *Move 5 (Explanation for expected or unexpected results)*, *Move 6 (Claim* and *Move 8 (Recommendation)* were conventional. *Move 3 (Expected or expected outcome)* and *Move 7 (Limitation)* were optional.
7.	Fallahi and Erzi (2003)	Seven journals (*Applied Linguistics*, *English for Specific Purposes*, *International Review of Applied Linguistics*, *Language Learning*, *The Modern Language Journal*, *Research in Teaching of English* and *TESOL Quarterly)*	The *Finding* move and the *Claim* move were the most frequent moves. The *Unexpected outcome* move was the least frequent move.

No.	Authors	Research focus	Findings
8.	Holmes (1997)	Social science research articles from three fields, namely History, Political Science and Sociology	No obligatory moves.
9	Jalilifar et al. (2012)	Applied Linguistics field of Iranian journals and international journals	*Move 5 (Reference to previous research)* was low in Iranian journals.
10.	Kanoksilpatham (2005)	Sixty biochemistry research articles published in five journals	*Move 1 (Contextualizing the study), Move 2 (Consolidating results), Move 3 (Stating limitations of present study)* were conventional, *whereas Move 4 (Suggesting further research)* was optional.
11.	Khorramdel and Farnia (2017)	Research articles in the field of Dentistry	*Move 2 (Reporting results)* and *Move 1 (Background information)* were presented in a majority of both English and Persian dentistry research articles. *Move 4 Step 4 (Evaluating results)*, *Move 6 Step 2 (Indicating significance or advantage)* and *Move 6 Step 3 (Evaluating methodology)* were absent in both corpora
12.	Lewin, Fine and Young (2001)	Research articles in Social Sciences	*Move 1 (Report accomplishments), Move 2 (Evaluate congruence of findings to other criteria), Move 3 (Offer interpretation), Move 4*

No.	Authors	Research focus	Findings
			(Ward off counterclaims)and Move 5 (State implications) were identified in the corpus. The sequences of *Move 2, Move 3* and *Move 4* were flexible.
13.	Nguyen and Pramoolsook (2015)	Results-discussion chapters in TESOL Master's theses written by Vietnamese students	*Move 1 (Introducing the results)* and *Move 2 (Reporting results)* were obligatory in the result chapter. *Move 3 (Summarizing results)* and *Move 4 (Commenting on results)* occurred in the discussion chapter.
14.	Nodoushan and Khakbaz (2011)	Iranian MA graduates' theses (not specified the field of study)	Obligatory moves were *Move 2 (Reporting results)*, *Move 4 (Commenting on results)* and *Move 7 (Deduction from research)*. Optional move was *Move 6 (Evaluating the Study).*
15.	Nwogu (1997)	Research articles in medical journals	He posited a three-move framework for discussion--*Move 1 (Highlighting overall research outcome), Move 2 (Explaining specific research)* and *Move 3(Stating research conclusion).*
16.	Peacock (2002)	Discussion section in research articles in seven disciplines, namely, Physics, Biology, Environmental Science, Business, Language and	No obligatory moves. *Move 7 (Claim)*, *Move 3 (Finding)* and *Move 5 (Reference to previous research)* were frequently used.

No.	Authors	Research focus	Findings
		Linguistics, Public and Social Administration and Law	
17.	Pojanapunya and Todd (2011)	Discussion section in research articles in the field of Applied Linguistics	*Move 1 (Summarizing findings)*, *Move 3 (Explaining reasons for the finding)*, *Move 4 (Conclusion to the field)*, *Move 5 (Linking to real world applications/ practical recommendations)*, *Move 7 (Pointing for direction for future research)* were frequent in research article section. *Move 6 (Discussing limitations of the study)* and *Move 2 (Linking to literature) about the research methodology* were infrequent.
18.	Postegello (1999)	Research article discussions in Computer Sciences	The frequent move was *Statement of results* whereas the least popular move is *Background information.* Recurrent cycle moves were the occurrence of *Move 2 (Statement of results)* followed by *Move 8 (Hypothesis and recommendation).*
19.	Rasmeenin (2006)	Discussion sections in Applied Linguistics written by Thai graduate students	Five obligatory moves were *Stating background information*, *Reporting results*, *Summarizing results*, *Commenting on results* and *Deductions from the research.*
20.	Sithlaothavorn and Trakulkasemsuk, (2016)	Thai and international journals in language learning and	Moves in Thai and international journals were not different. The obligatory moves for Thai

No.	Authors	Research focus	Findings
		communication	journals were *Move 2 (Revisiting results)* and *Move 4 (Comparing results with literature)*. The obligatory moves for international journals were *Move 3 (Interpreting results)* and *Move 4 (Comparing results with literature).*
21.	Yang and Allison (2003)	Conclusion section of research articles in Applied Linguistics	Seven-move model: *Move 1 (Background information)*, *Move 2 (Reporting results)*, *Move 3 (Summarizing results)*, *Move 4 (Commenting on results)*, *Move 5 (Summarizing the study)*, *Move 6 (Evaluating the study)* and *Move 7 (Deductions from the research*)

2.2 Move models for analyzing discussion sections

Different rhetorical move models have been posited. Each framework has different numbers of moves ranging from three moves to nine moves. The proposed rhetorical move models for the analysis of discussion sections are as follows:

Table 2.2: Rhetorical move models for discussion sections

No.	Authors	Model
1.	Dudley-Evans's (1994) move model	**Move 1**: Information move **Move 2**: Statement of results **Move 3**: Findings **Move 4**: (Un)expected outcome **Move 5**: Reference to previous research **Move 6**: Explanation **Move 7**: Claim **Move 8**: Limitation **Move 9**: Recommendation
2.	Holmes's (1997) move model	**Move 1**: Background information **Move 2**: Statement of results **Move 3**: (Un)expected outcome **Move 4**: Reference to previous research **Move 5**: Explanation of unsatisfactory results **Move 6**: Generalization **Move 7**: Recommendation **Move 8:** Outlining parallel or subsequent Development

No.	Authors	Model
3.	Kanoksilpatham's (2005) move model	**Move 1**: Contextualizing the study Step 1: Describing established knowledge Step 2: Presenting generalizations, claims, deductions, or research gaps **Move 2**: Consolidating results Step 1: Restating methodology Step 2: Stating selected findings Step 3: Referring to previous literature Step 4: Explaining differences in findings Step 5: Making overt claims or generalizations Step 6: Exemplifying **Move 3**: Stating limitations of present study Step 1: Limitations about the findings Step 2: Limitations about the methodology Step 3: Limitations about the claims made **Move 4**: Suggesting further research
4.	Kanoksilpatham's (2012b) move model	**Move 1**: Review the present study **Move 2**: Consolidating results

No.	Authors	Model
		Step 1: Report results Step 2: Explain results Step 3: Conclude results Step 4: Extrapolate results Step 5: Conclude results Step 6: Exemplify results Step 7: Claim values of results **Move 3**: State limitations and possible further research
5.	Young's (2001) move model	**Move 1**: Report accomplishments **Move 2**: Evaluate congruence of findings to other criteria **Move 3**: Offer interpretation **Move 4:** Ward off counterclaims **Move 5:** State implications
6.	Nwogu's (1997) move model	**Move 1**: Highlighting overall research outcome **Move 2**: Explaining specific research outcomes Step 1: Stating a specific outcome Step 2: Interpreting the outcome

No.	Authors	Model
		Step 3:Indicating the significance of the outcome Step 4: Contrasting present and previous outcomes Step 5: Indicating limitations of outcomes **Move 3**: Stating research conclusions Step 1: Indicating research implications Step 2: Promoting further research
7.	Peacock (2002)	**Move 1**: Information move **Move 2:** Findings **Move 3:** (Un)expected outcome **Move 4:** Reference to previous research **Move 5:** Explanation **Move 6:** Claim **Move 7:** Limitation **Move 8:** Recommendation
8.	Pojanapunyaand Todd's (2011) move model	**Move 1**: Summarizing findings **Move 2:** Linking to literature about the research methodology

No.	Authors	Model
		Move 3: Explaining reasons for the findings **Move 4:** Contributions to the field **Move 5:** Linking to real-world applications/ practical recommendations **Move 6:** Discussing limitations of the study **Move 7:** Pointing directions for further research **Move 8:** Presenting new findings
9.	Swales's (1990) move model	**Move 1**: Background information **Move 2:** Statement of results **Move 3:** (Un)expected outcome **Move 4:** Reference to previous research **Move 5:** Explanation **Move 6:** Examplification **Move 7:** Deduction **Move 8:** Hypothesis and recommendation
10.	Yang and Allison's (2003) move model	**Move 1: Background information** **Move 2: Reporting results** **Move 3: Summarizing results** **Move 4: Commenting on results**

No.	Authors	Model
		Step 1: Interpreting results Step 2: Comparing results with literature Step 3: Accounting for results Step 4: Evaluating results **Move 5: Summarizing the study** **Move 6: Evaluating the study** Step 1: Indicating limitations Step 2: Indicating significance/advantage Step 3: Evaluating methodology **Move 7: Deductions from the research** Step 1: Making suggestions Step 2: Recommending further research Step 3: Drawing pedagogic implications

As for the present study, Yang and Allison's (2003) model was chosen as the main analytical framework. This model does not only contain moves but also detailed steps in *Move 4 Step 1 (Interpreting results), Move 4 Step 2 (Comparing results with literature), Move 4 Step 3(Accounting for results), Move 6 (Step 1 Indicating limitations), Move 6 Step 2 (Indicating significance/advantage), Move 6 Step 3 (Evaluating methodology), Move 7 Step 1 Making suggestions, Move 7 Step 2 (Recommending further research)* and *Move 7 Step 3 (Drawing*

pedagogic implications). The steps in these three moves can help convey actual underlying generic structures of the corpus. Additionally, Yang and Allison's (2003) model has been widely and continuously used in empirical studies on move analysis (Amnuai, 2017; Amnuai and Wannaruk, 2013; Nodoushan, 2012).

Chapter summary

Chapter II presented previous empirical research studies on move structures and move frequency in discussion sections. This chapter also included details of move model for the identification of moves in discussion sections posited by scholars and researchers. The details of the research methodology used in the present study are provided in the next chapter.

CHAPTER III

RESEARCH METHODOLOGY

hapter III presents an overview of research methodology of the study. It covers a description and organization of the corpus (construction of the corpus, constituents of samples, sampling process and data preparation for concordance program) and move identification. The chapter also explains framework, analysis procedures, reliability assessment (coder selection, coder training and inter-coder reliability), *AntConc 3.2.4w* concordance program (option settings and tools used for generating target linguistic features and identifying their occurrence in context). The objective of this study is to investigate rhetorical move patterns and overall frequency of moves/steps of English discussion sections in international journals of Applied Linguistics and Science and Technology published Thailand. This study aimed at addressing two research questions: (1) How are rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand similar to or different from those of Science and Technology? and (2) Which obligatory and optional moves are used in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand?

3.1 Data

The data of the study was obtained from discussion sections in international journals in the fields of Applied Linguistics and Science and Technology published Thailand

during 2013-2017. The period of five year was chosen to convey the actual practice in the target genre. As for the fields of applied linguistics, the data were taken from four reviewed journals published in Thailand: *Journal of English Studies, NIDA Language and Communication Journal*, *PASAA Journal* and *rEFLections*. Regarding the Science and Technology journals, the data were from four reviewed journals--*Chiang Mai Journal of Science*, *KMITL Science and Technology Journal*, *Science and Technology Asia and Suranaree Journal of Science and Technology*. They were accessed via libraries and an electronic database.

These eight journals were chosen as the target corpus since their contents are relevant to the focus and discipline of the study--Applied Linguistics and Science and Technology. These selected peer-reviewed journals are recognized journals in the fields and are listed in acceptable citation database--ASEAN citation index (ACI), ERIC, SCOPUS and Thai-Journal Citation Index (TCI). The selected journals would convey what and how authors of the target discourse community include in their articles.

The information of four Applied Linguistics journals is specified as follows:

1) *Journal of English Studies* was founded in 2003. It is a biennial academic journal and has been renamed to *Journal of Studies in the English Language* (JSEL) since 2018.

2) *NIDA Language and Communication Journal* is the official journal of the Graduate School of Language and Communication, National Institute of Development Administration. It is published twice a year (June and December).

3) *PASAA Journal* is a peer-reviewed journal published by Chulalongkorn University Language Institute.

4) *rEFLections* is a double-blind refereed journal in Applied Linguistics and English language teaching. It is a periodical with two issues per year by School of Liberal Arts, King Mongkut's University of Technology Thonburi. The journal was first launched in 2001.

Table 3.1 shows the status of four Applied Linguistics journals by the citation database listed in alphabetical order.

Table 3.1: Status of four Applied Linguistics journals

Title	**Status**
Journal of English Studies	TCI1
NIDA Language and Communication Journal	TCI1
PASAA Journal	SCOPUS, ERIC
rEFLections	TCI2

The details of four Science and Technology journals are as follows:

1) *Chiang Mai Journal of Science* is peer-reviewed and published as hard copy and online open-access journal. It was first launched in 1973 by Faculty of Science, Chiang Mai University.

2) *KMITL Science and Technology Journal* was launched in 2001. It has been renamed to *Current Applied Science and Technology* since 2017.

3) *Science and Technology Asia* is formerly the *International Journal of Science and Technology Thammasat*. It is a peer-reviewed journal and first published in 1996. The journal includes articles in the fields of multidisciplinary science and technology.

4) *Suranaree Journal of Science and Technology* is a peer-reviewed journal. It is a quarterly official publication of Suranaree Unversity of Technology. It has been ranked in Tier 1 since 2015.

Table 3.2 presents the status of the four Science and Technology journals by the citation database listed in alphabetical order.

Table 3.2: Status of four Science and Technology journals

Title	**Status**
Chiang Mai Journal of Science	SCOPUS, Science Citation Index Expanded, TCI1
KMITL Science and Technology Journal	TCI1
Science and Technology Asia	ACI
Suranaree Journal of Science and Technology	TCI1

3.2 Compilation of the corpus data

Since this study aims to explore the discussion section of empirical research studies, the selection of discussion sections was based on purposive sampling. The corpus included empirical research articles with the headings of *"Discussion"* and excluded the sections with the headings

"Results and discussion", *"Discussion and conclusion"* and *"Discussion and summary"*. Only the parts identified as the separate discussion section were randomly selected. The corpus excluded book reviews, review articles and articles with an aim of sharing ideas. The study did not take the first language into account, so articles written by both native and non-native speakers of English. Research articles contain a wide range of wording for headings. The study also explored the total number of words, average text length and some linguistic features. During the compiling process, it was found out that some discussion sections, especially in Science and Technology, contained figures and tables. However, the word count did not cover words in those figures and tables.

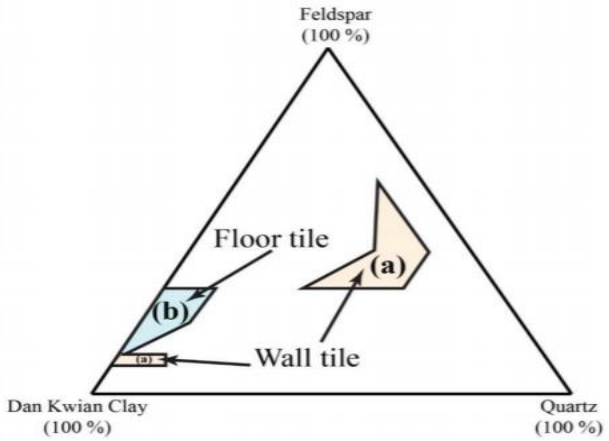


Figure 6. Areas of compositions which are useable for producing (a) wall tiles and (b) floor tiles

Table 3. International standard for ceramic wall tile and floor tile according to ISO 13006 (ISO, 1998)

Type of ceramic tiles	Properties	
	Flexural strength	Water absorption
Ceramic floor tile	> 22 MPa	3% - 6%
Ceramic wall tile	> 15 MPa	> 10%

#ST8

Figure 1: Example of a figure

Fig.1. Papaya 'Sunrise Solo' *in vitro*. (**A**) Photoautotrophic culture *in vitro* in a Vitron™ (i.e. whole vessel allows for air exchange) or using Milliseal® (allowing localized aeration; **B**) and 3000 µg/l CO_2. Manipulation of growth and size of seed-derived plantlets under 100% blue (**C**) or 100% red (**D**) light-emitting diodes. (**E**) Control plants growing under fluorescent lamps at 40 µmol/m^2/s. (**C-E**) Medium: Hyponex 3 g/l, 3% (w/v) sucrose in 1 L culture bottles. Figure reproduced from Teixeira da Silva JA, Rashid Z, Nhut DT, Sivakumar D, Gera A, Souza Jr. MT, Tennant PF (2007a) Papaya (*Carica papaya* L.) biology and biotechnology. *Tree and Forestry Science and Biotechnology* 1(1): 47-73, ©2007, with kind permission of Global Science Books (Ikenobe, Japan).

#ST19

Figure 2: Example of a figure

3.3 Construction of corpus

In order to address the two research aims set out in Chapter I, the construction of the corpus is the first step in text analysis. It is of great importance since appropriate corpus leads to the correctness and representativeness of the text.

Steps for construction of the corpus are as follows:

Step 1: Construction of corpus

All discussion sections in eight international journals of Thailand during 2013-2017 as specified in earlier sections (four in Applied Linguistics and four in Science and Technology) were compiled separately and divided into two data sets. Numbers were assigned in consecutive order beginning with "1" to each data set.

Step 2: Calculation of the sample size

Although the focus of the study is the text analysis, the researcher used Yamane's (1967) formula to determine the appropriate sample size. Yamane's (1967) formula was applied so that the findings from a sample can make inferences about a population as a whole. The detail of Yamane's (1967) formula is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

n = sample size

N = population size

e = sampling error or allowable error

The calculation of sample size of the study is as follows:

$$n = \frac{67}{1 + 67(0.05)^2}$$

$$n = \frac{67}{1 + 67(0.0025)}$$

$$n = \frac{67}{1.1675}$$

$$n = 57.38$$

Excluding the book reviews, review articles and the combination of discussion sections with results, the total number of discussion sections in Applied Linguistics was 67. The calculation showed that the appropriate sample size of the study was 57.38 texts. It was rounded up to the nearest whole number which was 60 texts. To have a balance corpus for both fields, the same number of texts in Science and Technology was included in the corpus. Therefore, the sample size of the study was 120 discussion sections (60 from journals in Applied Linguistics and 60 from journals in Science and Technology). For further reference, the Applied Linguistics data set was assigned with the capital letter *'AL'* followed by numbers (e.g. Text#AL28, Text#AL17and so on). The Science and Technology dataset was identified with the abbreviation *'ST'* followed by numbers (e.g. Text#ST35, Text#ST22and so on)

Table 3.3 shows details of corpus size including the number of words and average text length of each dataset.

Table 3.3: Constituents of samples

Types	**Number of texts**	**Number of words**	**Average text length**	**Min/Max**
Applied Linguistics	60	71,576	1,193	4,194/242
Science and Technology	60	38,360	639	1,955/141
Total	**120**	**109,936**		

As can be seen in Table 3.3, the number of total words and average words of these two fields were different. The word count revealed that the number of words in Applied Linguistics dataset far outnumbered that of Science and Technology. A total of 71,576 words were used in writing the 60 Applied Linguistics discussions. The average word count was 1,193 words per

discussion. The longest discussion in Applied Linguistics samples consisted of 4,191 and the shortest 242 words. Science and Technology corpus had a total of 38,360 words and an average of 639 words per discussion. The longest text was 1,955 words and the shortest only 141 words. The lists of the number of words in each sample are presented in Appendix A: Number of words in Applied Linguistic journals and Appendix B Number of words in Science and Technology journals.

Step 3: Sampling process

The study applied a simple random sampling process to obtain samples. All discussion sections of each field were identified with numbers. A list of discussion sections was torn up into slips of paper of the same size. They were mixed up (randomized) and then picked to ensure that all of them had equal probability of being picked by the researcher without any bias.

Step 4: Data preparation for software program

All samples from eight target journals retrieved in PDF format were converted to Microsoft word. All 120 samples were carefully checked for their typographical errors for the effective analysis of target linguistic features via *AntConc3.2.4w* program, a concordance program of the study. They were saved in plain text format (*.txt) which was the implementation requirement of the program. Steps in corpus preparation are shown in Figure 3

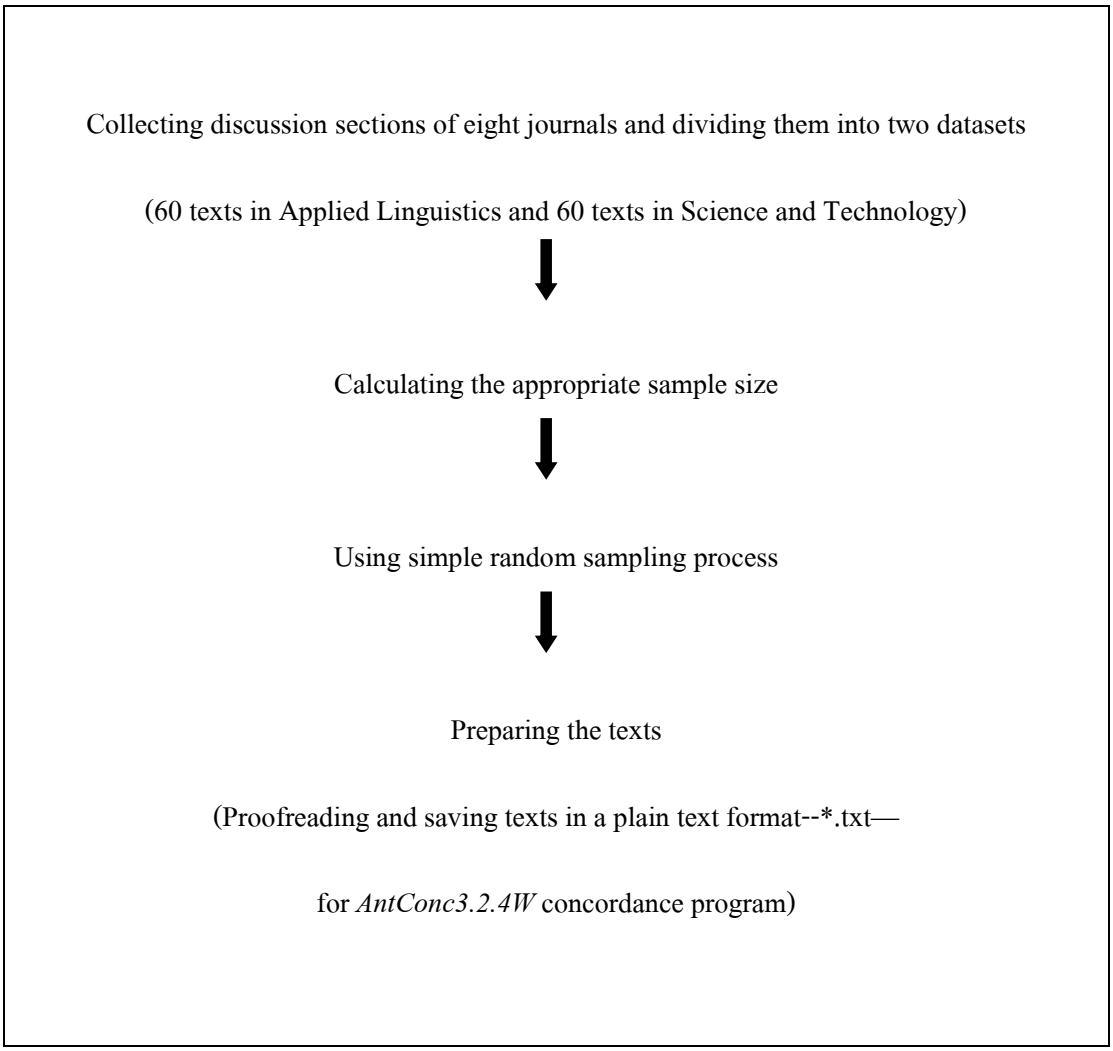


Figure 3: Steps of corpus preparation

3.4 Coding abbreviations and coding form

Regarding the coding process, the coding process was conducted manually by the researcher for two times. Coding abbreviations and coding forms were designed. The word *"Move"* was abbreviated as *"M"* and the word *"Step"* as *"S"*. For example, *Move 4 Step 3 (Accounting for results)* was abbreviated to*M4_S3*. The overall coding abbreviations are as follows:

Table 3.4: Coding abbreviations

Moves/ Steps	**Coding abbreviations**
Move 1: Background information	*M1*
Move 2: Reporting results	*M2*
Move3: Summarizing results	*M3*
Move 4: Commenting on results	*M4*
Step 1: Interpreting results	*M4_S1*
Step 2: Comparing results with literature	*M4_S2*
Step 3: Accounting for results	*M4_S3*
Step 4: Evaluating results	*M4_S4*
Move 5: Summarizing the study	*M5*
Move 6: Evaluating the study	*M6_S1*
Step 1: Indicating limitations	*M6_S2*

Moves/ Steps	Coding abbreviations
Step 2: Indicating significance/advantage	*M6_S3*
Step 3: Evaluating methodology	*M6_S3*
Move 7: Deductions from the research	*M7*
Step 1: Making suggestions	*M7_S1*
Step 2: Recommending further research	*M7_S2*
Step 3: Drawing pedagogic implications	*M7_S3*

The coding form was designed for the analyzing process and used by both the researcher and the co-coders. The form comprised three main elements-- the brief detail of the text (field of study, text number, number of words and the text), rhetorical move model, brief details of moves and steps. The overall coding form is shown in Appendix C Coding form.

3.5 Data analysis

Identification of moves

Methodological approaches

There were two methodological approaches for the analysis of move patterns: the top-down approach and the bottom-up approach (Biber et al., 2007). The top-down approach mainly focuses the communicative purposes, so the move structures are analyzed first. Then the linguistic features to support the move analysis are explored later (Lieungnapar& Todd, 2011). The bottom-

up approach starts with the linguistic-quantitative analysis and followed by the functional-qualitative analysis. In other words, the lexicon and forms are primarily focused.

Biber et al. (2007), offered the seven sequencing steps for a top-down approach in a text analysis--Communicative/functional categories, Segmentation, Classification, Linguistic analysis of each move, Linguistic description of discourse categories, Text structure, Discourse organizational Moves. Upton & Cohen (2009) pointed out the advantage of the top-down approach that it provided "more detailed but generalizable analyses of discourse structure across a representative sample of texts from a genre" (p. 588). This study applied the top-down approach since the primary goal of the study was to portray communicative purposes found in target discussion sections. This study started with the analysis of communicative functions. In case of discrepancies between functions and linguistic clues, the priority was given to communicative functions. As for several moves embedded in one single sentence, that sentence was considered as a sentence with two or more moves.

As for the analysis framework, this study employed the seven-move model posited by Yang and Allison (2003) because of three major reasons. Firstly, Yang and Allison's (2003) move model was posited from the analysis of the discussion parts in Applied Linguistics research articles which related to the present corpus. Secondly, this model offers clear and detailed descriptions of communicative purposes and has useful and detailed steps appropriate for the study. Lastly, it has been one of the most practical and widely used rhetorical move models for the analysis of discussion sections, indicated by its continuous citations and uses in many

previous empirical research studies on move identification (Amnuai&Wannaruk, 2013; Khorramdel&Farnia, 2017; Nodoushan&Khakbaz, 2011; Rasmeenin, 2006). Yang and Allison's (2003) move model consisting of seven moves and ten steps is shown in Figure 5 below.

Move 1: Background information
Move 2: Reporting results
Move 3: Summarizing results
Move 4: Commenting on results Step 1: Interpreting results Step 2: Comparing results with literature Step 3: Accounting for results Step 4: Evaluating results
Move 5: Summarizing the study
Move 6: Evaluating the study Step 1: Indicating limitations Step 2: Indicating significance/advantage Step 3: Evaluating methodology
Move 7: Deductions from the research Step 1: Making suggestions Step 2: Recommending further research Step 3: Drawing pedagogic implications

Figure 4: Yang and Allison's (2003) framework

Classification of moves

To classify obligatory and optional moves, the study applied the cut-off point proposed by Kanoksilapatham (2005). An obligatory move occurs in at least 60% of the corpus, whereas an optional move occurs in less than 60% of the entire corpus. Although Kanoksilpatham's (2005) move classification was posited from the move analysis found in 60 biochemistry research articles, her proposed cut-off was posited from a systematically compiled corpus and has been widely used in move analysis studies. Nwogu (1997) pointed out the possibility of a new move in text analysis.A move with 50% of occurrence in the corpus was considered a stable move. However, this study did not discard any new communicative purposes occurring in less than 50% of the corpus since they could convey certain underlying characteristics of the target genre. They were considered a new emerging move.

Reliability Assessment

To avoid subjectivity and ensure the reliability in a text analysis, both inter-rater reliability assessment and intra-rater reliability assessment were applied.

Inter-rater Reliability Assessment

An inter-rater reliability assessment aims at ensuring the level of agreement among different coders in a text analysis. Two approaches for an inter-rater reliability assessment are Cohen's Kappa value and a percentage of agreement (Kanoksilpatham, 2007).

<u>Cohen's Kappa assessment</u>

Kappa value assesses the reliability of an analysis by different coders and takes chance agreements among coders into consideration (Cohen, as cited in Orwin, 1994). The formula for calculating Cohen's Kappa (K) value is as follows:

$$K = \frac{Pr(a) - Pr(e)}{1 - Pr(e)}$$

Pr (a) is a relative observed agreement among raters. Pr (e) is the hypothetical probability of chance agreement. The Kappa or *K* value is checked against the list of the inter-rater agreement to see whether it is acceptable or not. The levels of agreement among raters are interpreted from the *K* value as follows:

Kappa	**Agreement**
> 0.74	Excellent
0.60-0.74	Good
0.40-0.59	Fair
<0.40	Poor

(Orwin, 1994 as cited in Kanoksilpatham, 2005)

The acceptable Kappa value of the study is more than 0.74 (Excellent) to ensure that the researcher's results are in tune with those from other co-coders.

Percentage of agreement (PA)

The percentage of agreement reflects the number of agreements per total number of coding decisions (Biber et al., 2007) and the level of inter-coder reliability and

similarities/differences (Kanoksilapatham, 2005). The formula for calculating a percentage of agreement is as follows:

$$PA = \frac{A \times 100}{(A+D)}$$

"A" is the number of agreements. "D" is the number of disagreements. In a move analysis, an "agreement" means that the coders' move units are identical in terms of move identifications and move sequences.

Although the percentage of agreement is simpler than Cohen's Kappa, the researcher decided to use Cohen's Kappa coefficient to measure the inter-rater reliability as well. This is because percentage agreement statistics does not consider the probability of raters' guessing on scores (McHugh, 2012). On the other hand, Cohen's Kappa takes the possibility of guessing among raters into consideration.

An example of the calculation of percentage agreement to measure is as follows:

Number of agreements = 78

Number of disagreements = 7

$$PA = \frac{78 \times 100}{(78+7)}$$

$$= \frac{7{,}800}{85}$$

= 91.76%

As for the current study, the assessment of inter-rater reliability revealed that the Cohen's Kappa value was more than 0.93 and the percentage of agreement was higher than 94%.

Intra-rater reliability assessment

An intra-rater reliability assessment was used to ensure the reliability and the consistency of the analysis conducted by the researcher. After a two-week interval, the researcher analyzed the same text to check the level of reliability and consistency (Jalilifar, 2010; Mahzari & Maftoon, 2007). The formula for calculating an intra-rater reliability assessment is as follows:

$$\frac{A \times 100}{(A+D)}$$

"A" is the number of agreements. "D" is the number of disagreements.

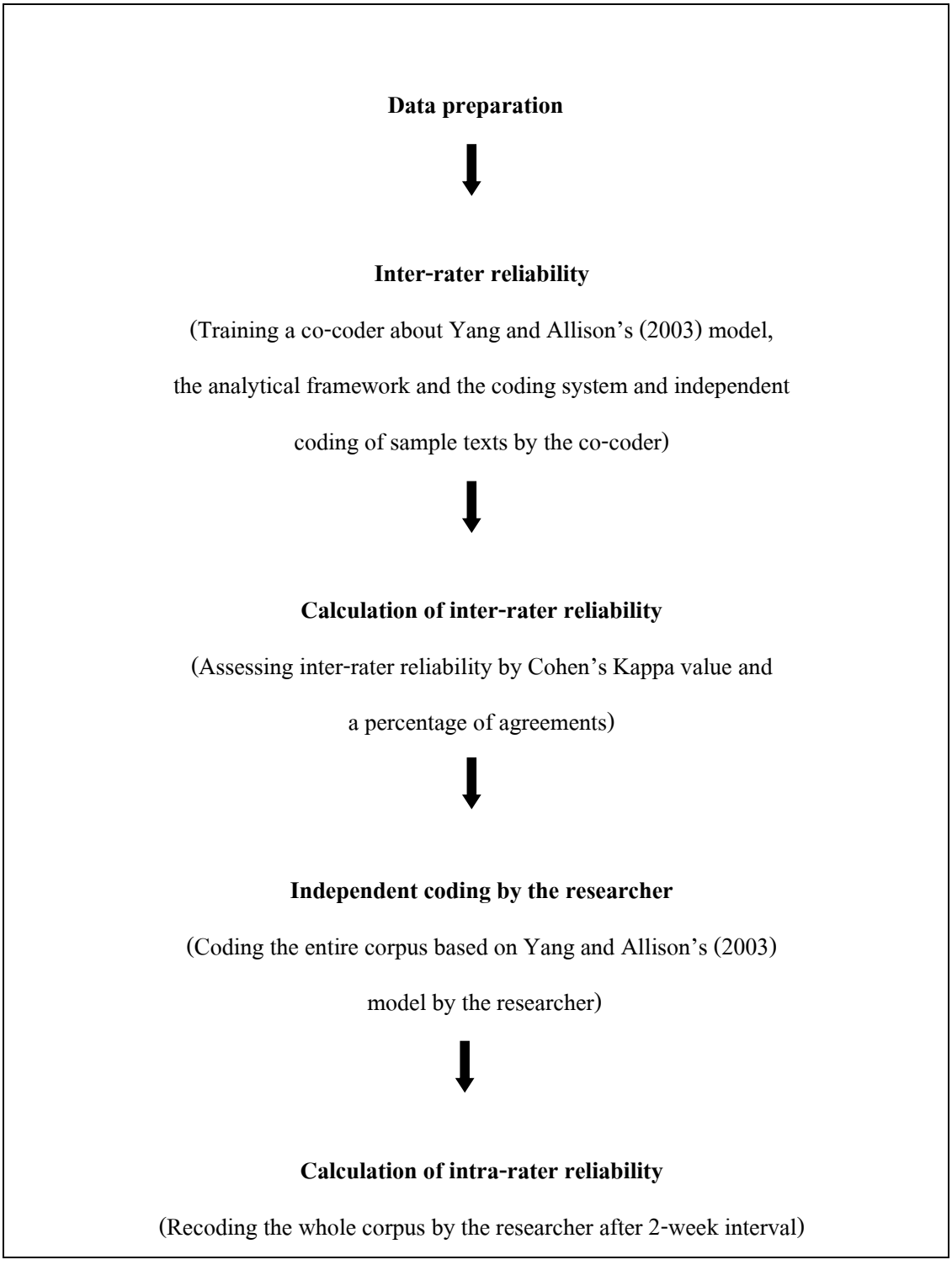
The example of the calculation to measure intra-rater reliability is as follows:

Number of agreements = 78

Number of disagreements = 7

$$PA = \frac{78 \times 100}{(78+7)} = \frac{7{,}800}{85} = 91.76\%$$

The findings showed that after a two-week interval and the analysis for two times the researcher had a high level of agreements of 91.76%. As a result, the researcher continued coding all texts in the corpus. Steps of the coding process are shown in Figure 5.



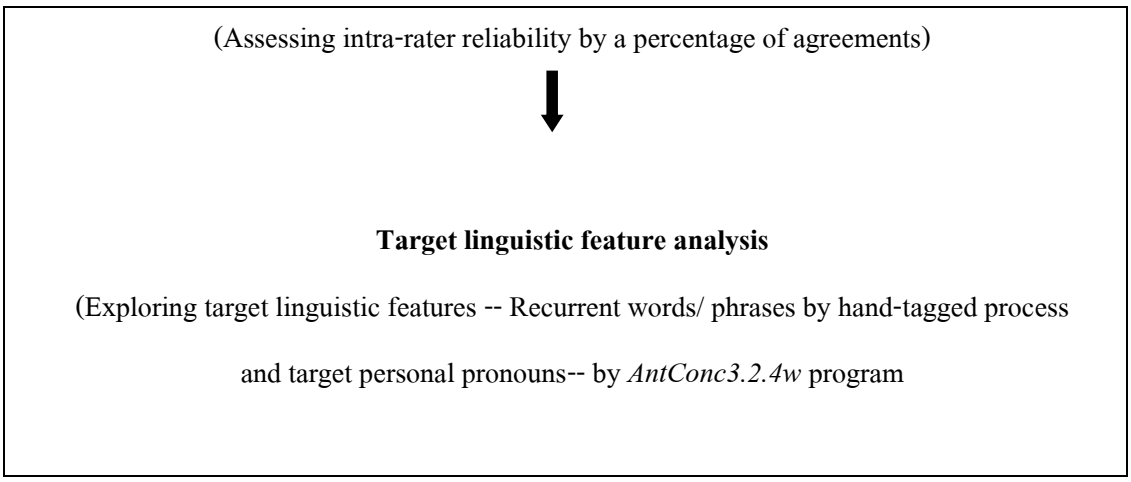


Figure 5: Steps of the coding process

Identification of target linguistic features

The study investigated the overall occurrence of subject personal pronouns. It also had a focus on the pronouns *"I*" and *"we"* showing author's identity and stance in research discussions.

To identify the target linguistic features, an "*AntConc3.2.4w*" software program was used as a tool. Before implementing the program, the researcher set the three options--High tag option, Punctuation option setting and Case-incentive option setting.

Steps for using *AntConc3.2.4w* program for linguistic feature identification and classification are in Figure 7.

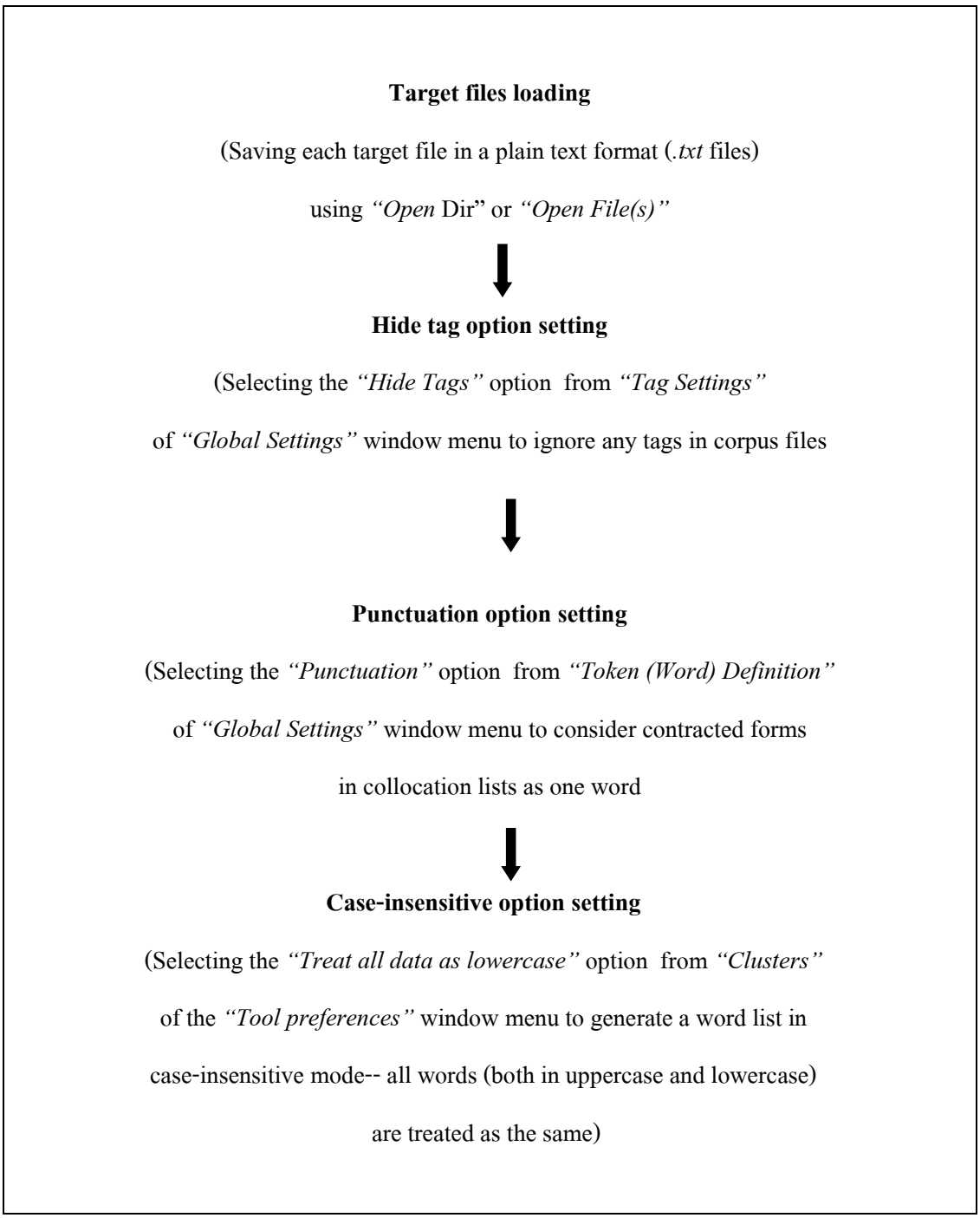


Figure 6: Steps of *AntConc3.2.4w* program for linguistic feature identification

The concordance tool in *AntConc3.2.4w* program was applied in checking occurrence of personal pronouns in texts before being manually rechecked by the researcher. The researcher clicked a concordance icon and typed the word she wanted to search for in textbox and then clicked *"start"* button. The concordance tool showed all instances of the word, their contexts and file names. An example of identifying the ocurrennces of *"we" with* a concordance tool of the *AntConc3.2.4w* program is shown in Figure 7.

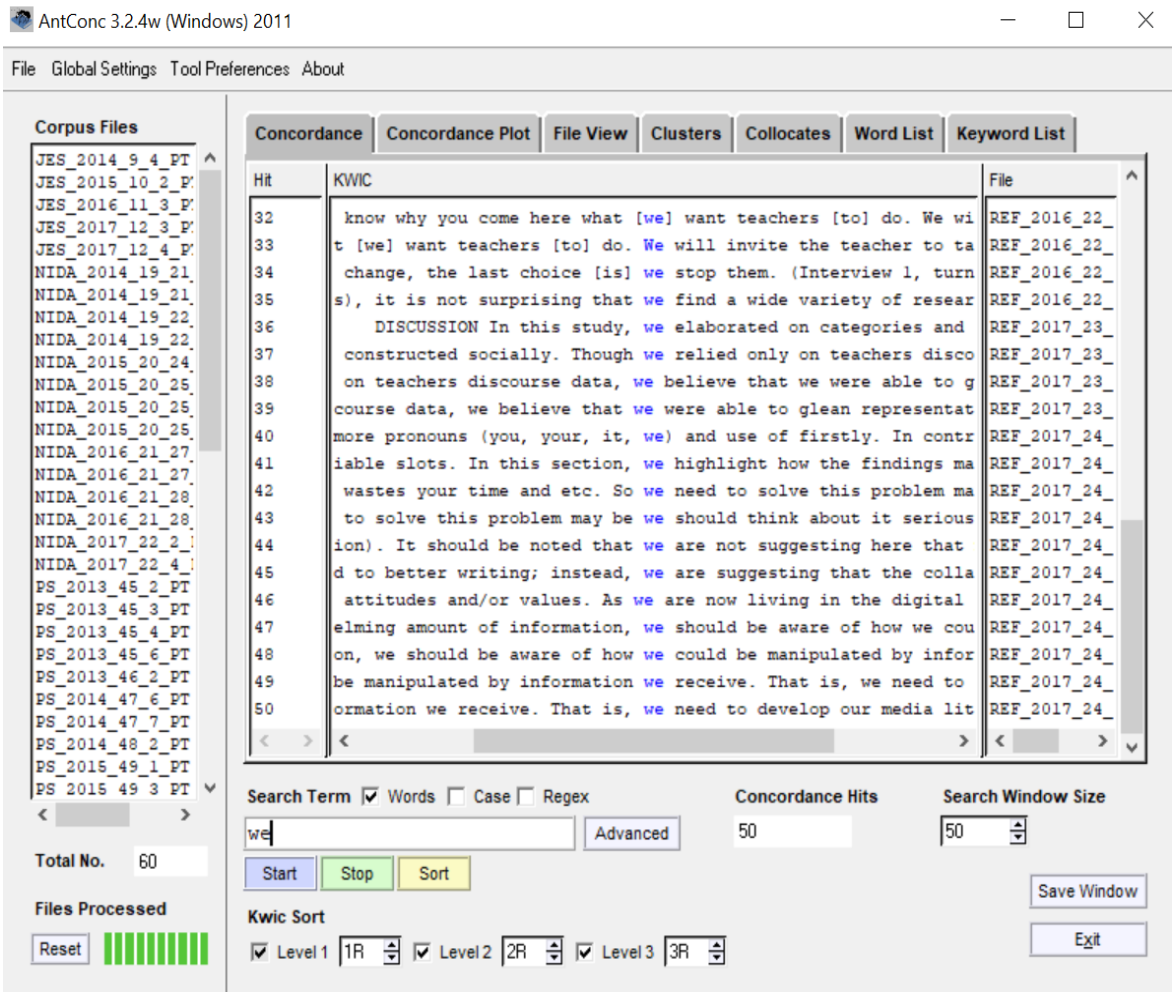


Figure 7: Screenshot of the searching result for the pronoun *"we"*

As shown in Figure 7, of all 60 files the pronoun *"we"* occurred 50 times as seen in the box "Concordance Hits". It occurred in text files like REF_2016_22_6_PT.txt, REF_2017_23_1_PT.txt, REF2017_24_2_PT.txt and so on. The researcher further analyzed each occurrence in its own context by clicking each key word.

Chapter summary

In conclusion, the present study was conducted to answer two research questions regarding move sequences and the occurrence of moves and steps as obligatory moves and optional moves). To answer these research questions, 120 discussions-- 60 from international journal of Applied Linguistics and 60 from international journal of Science and Technology -- were explored. The corpus included discussion sections of empirical studies marked with the heading *"Discussion"* and excluded texts with other headings--*"Results and discussion", "Discussion and conclusion"* and *"Discussion and summary"* since they might include some other elements of research articles like results and summary. These constituents were not the main focus of the analysis. Figures, photos, tables and their captions were not included in the analysis. Move identification was hand-tagged. The analysis was conducted in accordance with Yang and Allison's (2003) move model since it consisted of seven moves and 10 detailed steps which covered move structures of the texts analyzed. Additionally, the chapter covers the details about the implementation of the *AntConc3.2.4w* concordance program in identifying the occurrence of personal pronouns. The study applied the inter-rater and intra-rater reliability assessments to ensure the reliability in a text analysis and avoid subjectivity. Descriptive statistics

was used to determine the frequency of moves, move patterns and personal pronouns. The next chapter presents findings arranged in accordance with research questions as mentioned in Chapter I. Some examples of move patterns, moves/ steps, recurrent word choices/ phrases and pronouns relating to or helping clarify those findings are also presented.

CHAPTER IV

RESULTS

The study explored English discussion sections in international journals in the fields of Applied Linguistics and Science and Technology published in Thailand during 2013-2017. The corpus comprised 120 texts--60 from four Applied Linguistics journals totaling 71,576 words and 60 from four Science and Technology journals totaling 38,360 words. The study adopted Yang and Allison's (2003) frame work. The data were both manually analyzed and automatically extracted with *AntConc 3.2.4*w program.

The study set out to address two research questions as follows:

1. How are rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand similar to or different from those of Science and Technology?

2. Which obligatory and optional moves are used in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand?

This chapter presents the results of the study both quantitatively and qualitatively. This chapter consists of two main sections. Each part conveys the detailed findings of each research question. The first part shows rhetorical move patterns. The second section presents the overall frequency of moves/steps and obligatory and optional moves. Examples from the corpus are also provided.

4.1 Research question 1

How are rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand similar to or different from those of Science and Technology?

4.1.1 MOVES PATTERNS IN APPLIED LINGUISTICS

This section aimed at presenting move patterns in discussion sections of Applied Linguistics. There were considerable differences in move patterns in the corpus of Applied Linguistics. Table 4.1 displays three most frequently occurring move patterns of Applied Linuistics data set.

Table 4.1: Move patterns in Applied Linguistics journals

Move pattern	Number of occurrence	Percentage
M2-M4	19	31.66%
M1-M2-M4	11	18.33%
M1-M2-M4-M7	9	15%

The move sequences comprised a set of sequential moves ranging from two to five moves such as *M2-M4* and *M1 -M2-M3-M4-M5-M6-M7*. The three- move sequence had the highest number of occurrence, whereas the two-move pattern was the least popular one. There was no linear structure *M1-M2-M3-M4-M5-M6-M7* in the dataset. The prevalent pattern was *M2-M4* with 19 instances (31.66%), followed by *M1-M2-M4* with 11 instances or 18.33% and *M1-M2-M4-M7* with 9 instances or 15%.

Move cycles refer to repetitions of the same move in a move structure. Detailed observation conveyed that the cyclical pattern of *M2-M4* in the pattern *M1-M2-M4* was very high. The highest instance was the pattern *M1-M2-M4-M2-M4-M2-M4- M2-M4- M2-M4- M2-M4- M2-M4*).

One co-occurrence of move deserved mention: *Move 2 (Reporting results)* and *Move 4(Commenting on results)* in the pattern of ordering moves. Besides, cyclical pattern of *Move 2 (Reporting results)* and *Move 4 (Commenting on results)* were employed extensively. That is to say, authors explained their findings and then commented on their results. In general, the discussion of their findings—*Move 4 Step 1 (Interpreting results), Move 4 Step 2 (Comparing results with literature), Move 4 Step 3 (Accounting for results)* and *Move 4 Step 4 Evaluating results)* was shorter than the results. Of all these co-occurrence patterns found in the corpus, the sequence of *Move 2 (Reporting results)* and *Move 4 Step 2 (Comparing results with literature)* was prevalent. Examples of the co-occurrence of *Move 2 (Reporting results)* and *Move 4(Commenting on results)* are shown below.

Move 2 (Reporting results) and *Move 4 Step 2 (Comparing results with literature)*

Examples:

(Move 2 Reporting results) Based on the results provided in Table 1, it was found that the frequency of Move 1 (Establishing a territory) displays very slight fluctuation between the two sets of introductions. ***(Move 4 Step 2 Comparing results with literature)*** This result is consistent with that of Jalilifar (2010), who compared English RA introductions in the field of Applied Linguistics published in two different contexts (Iranian and international contexts).

(Move 2 Reporting results)He found that there were no significant differences in the occurrence of Move 1 although this move appeared less frequently in the local corpus than in the international corpus. ***(Move 4 Step 2 Comparing results with literature).*** This finding also supports Kanoksilapatham's (2011) study which reported that Move 1 was a salient move in civil engineering RA introductions.

(Text#AL3)

(Move 2 Reporting results) Overall, the high listening ability students reported more use of strategies than the low listening ability group. ***(Move 4 Step 2 Comparing results with literature)*** The findings corresponded with numerous strategy-related studies like in Chamot, Kupper and Impink-Hernandez (1988), Griffiths (2003), Liu (2004), and Piamsai (2005).

(Text#AL6)

(Move 2 Reporting results)The findings for both Research Questions 1 and 2, suggest that the PI and TI groups performed better than the DG group and that the TI group performed best among the three groups on interpretation and written production tasks. ***(Move 4 Step 2 Comparing results with literature)*** These findings support many previous studies that share similar aims (e.g. Mégharbi, 2007; Qin 2008; Russell,2009; Abbasian&Minagar, 2012; Mystkowska-Wiertelak&Pawlak, 2012). However, they are inconsistent with studies by, for example, VanPatten&Uludag (2011) and Birjandi, Maftoon&Rahemi (2011), which indicated that PI was superior to the control group in the case of interpretation.

(Text#AL59)

Interestingly, there was only one instance that *Move 4 (Commenting on results)* preceded *Move 2 (Reporting results)* as in the ordering pattern M4-M2-M4-M2-M4-M6. This was probably because of the style of writing that the author preferred to mention previous studies and later showed his research results.

4.1.2 MOVES PATTERNS IN SCIENCE AND TECHNOLOGY

The objective of this section is to present move patterns in discussion sections of Science and Technology journals. The findings revealed a wide range of move sequences. Three most frequent move sequences of Science and Technology data set are displayed in Table 4.2.

Table 4.2: Move patterns in Science and Technology journals

Move pattern	Number of occurrence	Percentage
M1-M2-M4	18	30%
M1-M2-M4-M7	15	25%
M1-M2-M4-M6	12	20%

There was no instance of the complete linear move pattern *M1-M2-M3-M4-M5-M6-M7*. No text analyzed contained all 7 moves posited by Yang and Allison's (2003) model. The findings revealed that the number of moves identified in move sequences were in line with those of Applied Linguistics. That is to say, move sequences in Science and Technology had a set of sequential moves ranging from two to five moves such as *M2-M4*, *M3-M4*and *M1-M2-M4-M6-M7*. The three- move sequence was prevalent; whereas the two-move pattern was the least popular one.

The most frequently occurring move pattern was *M1-M2-M*4 which was used in 18 texts accounting for 30 %. It was followed by *M1-M2-M4-M7* with 15 instances or25% and *M1-M2-M4-M6*with 12 cases or 20%. The extensive use of *Move 1* as opening move showed that the

majority of Science and Technology authors sought to guide readers on their studies through the discussion sections by mentioning some background information. It covered research questions, aims, methodological and theoretical information. One possible explanation is that authors helped readers gain a clearer picture of their research study before the discussion of findings. However, the length and detail of this move as the initial move greatly varied. Some contained a few sentences whereas others included a short paragraph with up to 10 sentences. The inclusion of research aims and theoretical framework were common. The detail on methodology was rarely mentioned. Accordingly, it can be inferred that the Science and Technology authors tended to explained research methodology in details in previous sections of research articles.

Like move structures in Applied Linguistics, the findings indicated the cycling sequence of *M2-M4.* The majority of authors used the sequence of *M2-M4* repeatedly in order to explain the results point by point along with the discussion. The highest frequency of *M2-M4* sequence was 4 instances. However, the number of M2-M4 sequence did not relate to the number of words.

As for the final move, *Move 4 (Commenting on results)*, *Move 6 (Evaluating the study)* and *Move 7 (Deduction from the research)* were frequently used as final moves. As can be seen from the findings, the authors mentioned *Move 6* to inform significance and limitations of their study to readers. Authors of the corpus chose to end their discussion sections with *Move 7 (Deduction from the research)* to make suggestions or recommend readers and scholars to conduct further studies. The move contained some information and functioned as the final

remarks for researchers or scholars in the field. Only a few researchers ended their discussion section with the evaluation of research methodology.

Like the corpus of Applied Linguistics, the co-occurrence of *Move 2 (Reporting results)* and *Move 4 (Commenting on results)* was prevalent. *Move 4* was followed *by Move 2.* Some examples of the co-occurrence of *Move 2 (Reporting results)* and *Move 4 (Commenting on results)* are shown below.

Move 2 (Reporting results) and *Move 4 Step 2 (Comparing results with literature)*

Example:

(Move 2 Reporting results) In the sample, 36.9 percent were employed in factories. However, most of the volunteers had mild stress level (36.6%) and had gradually adapted to society. Mild stress may not disturb health as much as severe stress (1.1%). ***(Move 4 Step 2 Comparing results with literature)*** The results of the study are relevant with the survey research of stress and coping behavior of out-patients in Yasothon Province which found that most of the volunteers had normal stress level (43.1%) [22].

(Text#ST18)

Move 2 (Reporting results) and *Move 4 Step 3 (Accounting for results)*

Examples:

(Move 2 Reporting results) Although, numerous properties are required for ceramic tiles, the most important properties are strength and water absorption. Table 3 shows the ISO standard for flexural strength and water absorption of ceramic wall tiles and floor tiles (ISO, 1998)and demonstrates that Dan Kwian clay cannot be used alone for producing ceramic tiles, because the flexural strength and water absorption of Dan Kwian clay does not correspond to the ISO standard. Feldspar is a flux material, is melted at the sintering temperature and increases the

liquid phase in the fired samples. The liquid phase fills up the pores in the samples during the firing process. Therefore, by adding feldspar, the flexural strength of Dan Kwian clay is significantly increased, while the water absorption of Dan Kwian clay is reduced. In contrast, quartz is a heat resistant material and it increases the sintering temperature. ***(Move 4 Step 3 Accounting for results)*** The unique property of Dan Kwian clay is that it has a high quartz (SiO2) content.

(Text#ST8)

(Move 2 Reporting results) As the level of physico chemical disturbance indicators was clearly different between all three sites, we compared the sensitivity of the local and the regional biotic indices of disturbance. The locally developed biotic indices based on diatoms (PNI) and macroinvertebrates (PBI) gave anomalous disturbance scores compared to the other metrics. For example, the PNI classified the CLV site as 'polluted' and PBI classified WSK as 'unpolluted'.

(Move 4 Step 3 Accounting for results) One explanation for the anomalous PNI results may be the lack of tolerance scores for the diatom taxa that characterized each site (see Table 6). Only nine of the 28 diatom taxa recorded in this study were assigned tolerance scores in the PNI, whereas the MDI assigned scores to 18 of 28 taxa.

(Text#ST42)

4.2 Research question 2

What obligatory and optional moves are typically found in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand?

4.2.1 MOVES AND STEPS IN APPLIED LINGUISTICS

In this section, a total of 60 discussion sections were hand-tagged to find out about the preferred and recurrent moves and steps using the Yang and Alison's (2003) rhetorical move

model. Furthermore, these texts were analyzed to identify whether they are obligatory or optional with the 60% cut-off occurrence rate suggested by Kanoksilpatham (2005). Obligatory and optional moves are marked with an asterisk. The frequency of moves and steps and their percentage distribution are displayed in Table 4.3.

Table 4.3: Distribution of moves in Applied Linguistics

Moves/ Steps	**Frequency** (N = 60)	**Percentage**
Move 1: Background information	**41**	**68.33%***
Move 2: Reporting results	**60**	**100%***
Move 3: Summarizing results	**9**	**15%****
Move 4: Commenting on results	**60**	**100%***
Step 1: Interpreting results	17	28.33%
Step 2: Comparing results with literature	51	85%*
Step 3: Accounting for results	27	45%
Step 4: Evaluating results	6	10%
Move 5: Summarizing the study	**4**	**6.66%****
Move 6: Evaluating the study	**19**	**31.66%****
Step 1: Indicating limitations	2	3.33%
Step 2: Indicating significance/advantage	12	20%
Step 3: Evaluating methodology	8	13.33%
Move 7: Deductions from the research	**20**	**33.33%****
Step 1: Making suggestions	4	6.66%

Moves/ Steps	Frequency (N = 60)	Percentage
Step 2: Recommending further research	8	13.33%
Step 3: Drawing pedagogic implications	9	15%

Note: * = Obligatory move

** = Optional move

N = the total number of texts in this study

% = the occurrence frequency of a move

The results presented in Table 4.3 indicated that all seven moves were used in the discussion parts of the corpus. Based on the specified cut-off, a move occurring 60% or higher than 60% was considered obligatory. On the contrary, a move occurring less than 60% was optional. The findings revealed three obligatory moves and four optional moves. Three obligatory moves were *Move 1 (Background information), Move 2 (Reporting results)* and *Move 4 (Commenting on results).* Four optional moves were *Move 3 (Summarizing results), Move 5 (Summarizing the study), Move 6 (Evaluating the study) and Move 7 (Deductions from the research).* The findings showed a preference of *Move 2 (Reporting results)* and *Move 4 (Commenting on results)*. They were used in all texts and were the most frequent move accounting for 100% (60 instances). The second most frequently occurring move was *Move 1 (Background information)* which constituted 68.33% (41 cases). *Move 5 (Summarizing the study)* was rarely used with only 6.66% (4 instances).

Another interesting point that deserved mention was the choice of steps. As shown in Table 4.1, *Move 4 Step 2 (Comparing results with literature)* had the highest frequency and was

considered an obligatory step (51 cases or 85% of the corpus). It was followed by *Move 4 Step 3 (Accounting for results)* with 27 instances (45%) and *Move 4 Step 1 (Interpreting results)* with 17 instances (28.33%). Although these two steps were not obligatory, they could distinguish more advanced writers form general ones. Research writers should consider including these moves in their research discussion. *Move 6 Step 1 (Indicating limitations)* was rarely included in the discussion sections with only 2 instances (3.33%).

4.2.1.1 Realization of moves and steps in Applied Linguistics

Each move/step of Applied Linguistics data set was examined to identify frequent word choices/phrases. The realization of an individual move found in the corpus of Applied Linguistics is shown below. Recurrent phrases and word choices are italicized, underlined and marked in bold.

Move 1: Background information

This move includes research questions, aims, methodological and theoretical information. Compared with other moves, this communicative purpose is concise and contains only a few sentences. Present tense was extensively used.

Example:

> This study ***attempts to investigate*** how tonality contributes to comprehensibility in native speaker judges with different experience to Thai accented English.
>
> (Text#AL4, bold and italic added)

Move 2: Reporting results

This move reports research findings. The extensive use of past tense was identified.

Example:

Apart from findings of vocabulary size, ***the results*** of the current study also ***revealed that*** the depth of vocabulary knowledge, operationalized by VKS and word-associates test, had a higher correlation level of r=0.91.

(Text#AL8, bold and italic added)

Move 3: Summarizing results

The aim of this move is to sum up research findings.

Example:

In sum, all groups of co-workers disclosed evidence that indirectness was generally employed.

(Text#AL52, bold and italic added)

Move 4: Commenting on results

This move is determined to make comments on research findings and is divided into four main steps.

Step 1: Interpreting results

Example:

The variety of learning activities may have motivated them to learn instead of sticking to only one type of feedback until the end of the course.

(Text#AL11)

Step 2: Comparing results with literature

Examples:

Regarding the strategy of "reading the whole cloze passage before working on the blanks," the finding seems to be ***in contrast to*** what has been found in the previous studies (Emanuel, 1982and Hashkes and Koffman, 1982, cited in Cohen,1998: 104).

(Text#AL29, bold and italic added)

The finding that Bangkok University students' learning strategy use was at a moderate level ***is in line with*** the studies of Nikoopour, Farsani and Neishabouri (2001), Ok (2003), Zhao(2009)and Zare (2010) who found that the participants in their studies used the strategies at a moderate level.

(Text#AL48, bold and italic added)

Step 3: Accounting for results

Examples:

A likely explanation can be the effect of the quality of teaching or transfer of training. However, the overall attitude scores may be inconclusive to establish the relationship between the attitudes and the intonation production scores of the learners in this study.

(Text#AL2, bold and italic added)

A reason for this finding is that low proficient students generally tried hard in order not to fail or receive an F.

(Text#AL48, bold and italic added)

Step 4: Evaluating results

Example:

In addition, it ***is very likely that*** this group of students had limited command of the English language. Thus, they could not perform well on the reading test. This could possibly affect the correlation coefficient between the reading scores and the self-perception scores.

(Text#AL13, bold and italic added)

Move 5: Summarizing the Study

The purpose of this communicative purpose is to sum up the study.

Example:

The results of the present study confirm that tourism English has its own specific word choices.

(Text#AL24)

Move 6: Evaluating the study

The function of this move is to show limitations, inform significance and assess research methodology.

Step 1: Indicating limitations

Example:

This study, however, had a number of ***limitations*** which need to be addressed in future research, the key ones being the small sample of participants and the short period of data collection.

(Text#AL4, bold and italic added)

Step 2: Indicating significance/advantage

Example:

However, these findings have ***shed some light*** on the reading and cloze test-taking procedures of EFL university students with different reading ability levels.

(Text#AL29, bold and italic added)

Step 3: Evaluating methodology

Example:

Another factor that could explain ***the lack*** of statistical significance in the findings may be due to the sample size.

(Text#AL1, bold and italic added)

Move 7: Deductions from the research

This move is mainly used to suggest the implementation of research findings, to give advice on further studies and to discuss possible pedagogical implications.

Step 1: Making suggestions

Example:

The results of this study ***suggest*** that having a program to create diagrams or figures showing the relationship between keywords visually or even adding visual features to the existing corpus tools would be useful.

(Text#AL40, bold and italic added)

Step 2: Recommending further research

Example:

Future researchers are encouraged to use one or more of these techniques to elevate learning at later delays to provide greater measurement sensitivity and rule out this antithetical view.

(Text#AL55, bold and italic added)

Step 3: Drawing pedagogic implications

Examples:

The results here have direct ***implications*** for teaching academic listening comprehension.

(Text#AL8, bold and italic added)

From the findings of this research study, ***the following implications*** can be applied into classroom practice…

(Text#AL18, bold and italic added)

Personal pronouns

Apart from the move frequency as mentioned earlier, the study also examined the proportion of subject personal pronouns. The frequency and percentage distribution of seven personal pronouns are presented in Table 4.4.

Table 4.4: Distribution of subjective personal pronouns in Applied Linguistics

Type of subjective personal pronouns		**Number of occurrence**	**Percentage**
1st person	*I*	172	14.99%
	We	50	4.35%
2nd person	*You*	30	2.61%
3rd person	*He*	27	2.35%
	She	63	5.49%
	It	445	38.79%
	They	360	31.38%
Total		**1,147**	**100%**

The study revealed actual occurrence of all seven subject personal pronouns--*"I", "he", "she", "it"*, "*you"*, *"we"* and *"they"*. As Table 4.4 indicates, there was a different proportion among pronouns. The pronoun *"it"* had the highest frequency (455 instances or 38.79%). The

pronouns *"they"* with a frequency of 360 (31.38%) and *"I"* with a frequency of 172 (14.99%) were the second and third frequent words. On the contrary, the pronoun *"he"* was infrequently used with 27 instances or 2.35%. Since the research emphasized the choice of the pronouns "*I*" and "*we*" as a way of showing author's self-mention and identity. Further detailed analysis was conducted to identify those pronouns referring to authors and excluded their occurrence in sample texts, interviews and so on.

First person singular pronoun *"I"*

There were 172 instances of the pronoun "*I*" in 18 texts of the corpus. After the detailed analysis, it was found out that the majority of the pronoun "*I*" was examples of texts, parts of open-ended questions, participants' ideas and interviews as shown below.

Samples of texts

Example:

Also, this motivation can be applied to code switching, for example, "Hello! *I*'m a shopaholic *เรา เป็นคนหนึ่งที่ติดการช็อปปิ้งออนไลน์*" (Hello, ***I*** am a shopaholic. *am addicted to online shopping*). Thus, this way can help readers to understand the written English message correctly.

(Text#AL28, bold and italic added)

Open-ended questions/Questionnaires

Examples:

the use of communication activities in class in the open-ended questions, stating that —***I*** expect from this class it's not just the communicative activities but I expect to learn how to present in formal type

(Text#AL16, bold and italic added)

…one of the participants expressed that:

Jargon book supply main points and specific knowledge of topic, it is enormously useful for us. ***I*** can easily grasp the main points related to course units because it supplies short and brief explanation about topic.(Participant 17)

(Text#AL23, bold and italic added)

Interviews

Examples:

…in the words of another interviewee: "Sometimes my motivation is low, so ***I*** change something. Do something fun like drawing pictures or watching movies" (Participant 45, F).

(Text#AL55, bold and italic added)

In the interview, ***I*** (Interviewee) (high level of language proficiency) said ―***I*** really want to learn English well. ***I*** think pragmatics is very important in language learning and ***I*** feel proud when ***I*** can use good English to communicate with native speakers.

(Text#AL18, bold and italic added)

The findings revealed that there were 10 cases of the pronoun "*I*" referring to the author in six texts in the corpus. The frequency and percentage distribution of the first person pronouns "*I*" in the analyzing model is presented in Table 4.5.

Table 4.5: Distribution of the pronouns "*I*" in Applied Linguistics

Moves/ Steps	**Frequency** (N = 10)	**Percentage**
Move 1: Background information	**-**	**-**
Move 2: Reporting results	**5**	**50%**
Move 3: Summarizing results	**-**	**-**

Move 4: Commenting on results	**3**	**30%**
Step 1: Interpreting results	1	10%
Step 2: Comparing results with literature	1	10%
Step 3: Accounting for results	1	10%
Step 4: Evaluating results	-	-
Move 5: Summarizing the study	-	-
Move 6: Evaluating the study	-	-
Step 1: Indicating limitations	-	-
Step 2: Indicating significance/advantage	-	-
Step 3: Evaluating methodology	-	-
Move 7: Deductions from the research	**2**	**20%**
Step 1: Making suggestions	-	-
Step 2: Recommending further research	-	-
Step 3: Drawing pedagogic implications	2	20%

As can be seen in Table 4.5, authors in the corpus used the pronoun "*I*" in reporting results, making comments on results and drawing some implications. The pronoun was identified in three moves: *Move 2 (Reporting results)* with 5 instances (50%), *Move 4 (Commenting on results)* with 3 instances (30%) and *Move 7 Deductions from the research* with 2 instances (20%).

As evident in the table, authors in the corpus avoided using the pronoun "*I*" in *Move 1 (Background information)*, *Move 3 (Summarizing results)*, *Move 5 (Summarizing the study)* and *Move 6 (Evaluating the study).* Examples below show the occurrence of the pronoun "*I*" in its contexts. They are marked in bold and italics.

Move 2: Reporting results

Examples:

The results of this study, taken together, do not support a generalized noun bias in adulthood; thus ***I*** did not find support for a noun bias as others have observed among young language learners.

(Text#AL34, bold and italic added)

I only recognized after data collection was that order of words in ostensive trials was not counterbalanced by target; each target word was presented in the context of either the noun-verb order or the verb-noun order.

(Text#AL34, bold and italic added)

Move 4 Step 1: Interpreting results

Example:

…for which ***I*** argue that the EFL learners who do not reach a threshold level of at least 5,000 word families of declarative knowledge and procedural knowledge will find it very difficult to process the auditory input effectively.

(Text#AL8, bold and italic added)

Move 4 Step 2: Comparing/Contrasting results with literature

Examples:

As ***I*** take the stance of the critical approach - out of the three different approaches of intercultural communication that Oetzel et al.(2016) and Martin and Nakayama (2010) provide as mentioned above - to explain the relative unpopularity of Doraemon in the U.S., socio-cultural and

ideological inequality was found in American version of Doraemon through the lens of the critical approach.

(Text#AL46, bold and italic added)

Move 4 Step 3: Accounting for results

Example:

I believe that the nature of Thai kinship principles as the way to address someone is transferred and applicable to the creation of slang terms used by Thai stock investors, because these kinship terms are also placed before addressing the stock names and indexes, similar to the way Thai people address someone they know.

(Text#AL39, bold and italic added)

Move 7 Step 3 Drawing pedagogic implications

Example:

I hope that this article may have raised the awareness of researchers, especially those new to publishing in international refereed journals, of what to expect from reviewers and that paying attention to the points covered in the article may reduce the chances of research being rejected.

(Text#AL47, bold and italic added)

First person singular pronoun *"we"*

The first-person plural pronoun *"we"* was more common than the first-person singular pronoun *'I'*. Of the 60 texts, there were 50 instances of the plural pronoun *"we"*. A detailed

investigation showed that 8 of 50 cases of *"we"* did not refer to authors. They are parts of examples of texts and interviews as shown below.

Samples of texts

Example:

So ***we*** need to solve this problem may be ***we*** should think about it seriously. How to get /---/ form games addiction? I think they should find some activities to do instead playing game. It's such a good idea because some activity can make your body stronger and your feeling much better. Sometime you can find new friends from activities to. How about wasting of time? It**'**s very serious problem for student who's playing games. However, it has its own solution. You just manage your time and make it well. So playing game is good but don't let them destroy you**.**

(Text#AL60, bold and italic added)

Interviews

Examples:

…***we*** work for the benefit. If our student decrease so our..if our school decrease the student so our benefit decrease also, so our business is not success. So if our student to increase, our benefits increase as well, the environment of the school will be happy…

(Text#AL60, bold and italic added)

We will invite the teacher to talk about this [and] tell them. After that, if they [do] not change, the last choice [is] we stop them."

(Text#AL60, bold and italic added)

Table 4.6 displays the descriptive statistics of the first person pronouns "*we*" in Applied Linguistics data set.

Table 4.6: Distribution of the pronoun "*we*" in Applied Linguistics

Moves/ Steps	Frequency (N = 42)	Percentage
Move 1: Background information	**5**	**11.90%**
Move 2: Reporting results	**21**	**50%**
Move 3: Summarizing results	**2**	**4.76%**
Move 4: Commenting on results	**5**	**11.90%**
Step 1: Interpreting results	1	2.38%
Step 2: Comparing results with literature	3	7.14%
Step 3: Accounting for results	1	2.38%
Step 4: Evaluating results		
Move 5: Summarizing the study	**-**	**-**
Move 6: Evaluating the study	**3**	**7.14%**
Step 1: Indicating limitations	-	-
Step 2: Indicating significance/advantage	2	4.76%
Step 3: Evaluating methodology	1	2.38%
Move 7: Deductions from the research	**6**	**14.28%**
Step 1: Making suggestions	5	11.90%
Step 2: Recommending further research	1	2.38%
Step 3: Drawing pedagogic implications	-	-

As can be seen in Table 4.6, the pronoun "*we*" was used in six moves of the Yang and Allison's (2003) model. *Move 2 (Reporting results)* had the highest frequency with 21 instances (50%), followed by *Move 7 (Deductions from the research)* with 6 instances (14.28%) and *Move 1 (Background information)* with 5 instances (11.90%) and *Move 4 (Commenting on result*s) with 5 cases (11.90%). The pronoun *"we"* was rarely used in *Move 6 (Evaluating the study)* with 3 instances (7.14%).

The analysis implied that authors preferred to use the pronoun *"we"* in reporting their findings to show their identity. On the contrary, they did not use it in the summary of the study. The authors avoided using the pronoun "*we"* in informing pedagogical implications. Some examples of the pronoun "*we*" in each move are as follows:

Move 1: Background information

Example:

In this study, ***we*** elaborated on categories and themes gleaned from nonlocal teachers 'discourse regarding their contextualization of intercultural education.

(Text#AL58, bold and italic added)

Move 2: Reporting results

Example:

We found that the percentage of gay and bisexual males to straight males is at 18.75% in this male population, indicating that gay and bisexual male Chulalongkorn University students are more open about their sexual orientation compared to the global population.

(Text#AL36, bold and italic added)

Move 3: Summarizing results

Example:

According to the two examples, ***we*** may conclude that 'simple' alone may not be sufficient to get extra attention because the advertising market is getting more and more competitive.

(Text#AL24, bold and italic added)

Move 4: Commenting on results

Example:

Pandey further argues that ***we*** should rethink the teacher fronted classrooms and calls for an "individual workshop configuration" for better addressing the specific and individualized errors and weaknesses of students (p. 690).

(Text#AL12, bold and italic added)

Move 6: Evaluating the study

Example:

It should be noted that ***we*** are not suggesting here that more lexical bundles lead to better writing; instead, ***we*** are suggesting that the collaborative condition permitted the students to use different…

(Text#AL60, bold and italic added)

Move 7: Deduction from the research

Example:

As ***we*** are now living in the digital era with overwhelming amount of information, ***we*** should be aware of how we could be manipulated by information we receive. That is, we need to develop our media literacy.

(Text#AL45, bold and italic added)

The personal pronoun "*we"* in Applied Linguistics data set served both inclusive and exclusive purposes. An inclusive *"we"* is used to refer to the writer or speaker and his or her addressees. The exclusive *"we"* only refers to the writer or speaker but excludes readers (Martin, 2003b; Lores, 2006). Table 4.7 accounts for the distribution of inclusive *"we"* and exclusive *"we"* in Applied Linguistics.

Table 4.7: Distribution of inclusive *"we"* and exclusive *"we"* in Applied Linguistics

Type	**Number of occurrence**	**Percentage**
Inclusive *"we"*	20	47.61%
Exclusive *"we"*	22	52.38%
Total	42	100%

As shown in the above table, exclusive *"we"* was slightly more common than inclusive one. Writers used the exclusive *"we"* in 22 instances (52.38%), whereas they used the inclusive *"we"* in 20 instances (47.61%). That is to say, authors tended to exclude readers while using the pronoun *"we"* in discussion sections. Some examples of the inclusive *"we"* and the exclusive *"we"* in their original contexts are shown below.

Inclusive *"we"*

Examples:

However, if ***we*** take a close look at the context of the class, Oral Communication should aim at promoting authentic and meaningful communication. To do so, teachers teaching this kind of

English course need to reconsider whether or not the questions they frequently ask are able to serve those aims.

(Text#AL52, bold and italic added)

In the former, the adjective 'wild' does not necessary denote something beautiful. ***We*** are familiar with the 'wild' in 'wild animals' which means 'untamed'. However, in this context, it is used to stress the country's beauty which is natural, exotic and untainted.

(Text#AL24, bold and italic added)

Exclusive *"we"*

Examples:

We found that the percentage, of gay and bisexual males to straight males is at 18.75% in this male population, indicating that gay and bisexual male Chulalongkorn University students are more open about their sexual orientation compared to the global population.

(Text#AL36, bold and italic added)

From the data above, ***we*** have observed that there are several factors that can be attributed to code-switching in a conversational joking situation.

(Text#AL50, bold and italic added)

In this study, ***we*** elaborated on categories and themes gleaned from nonlocal teachers' discourse regarding their contextualization of intercultural education.

(Text#AL62, bold and italic added)

4.2.2 MOVES AND STEPS IN SCIENCE AND TECHNOLOGY

With the Yang and Alison's (2003) move model, 60 discussion sections from four Science and Technology journals were explored to identify their moves and steps. Like the

analysis of Applied Linguistics journals, these texts were classified into obligatory and optional moves with the 60% cut-off occurrence rate posited by Kanoksilpatham (2005). Obligatory and optional moves are marked with an asterisk. The results of move distribution in Science and Technology are shown in Table 4.8.

Table 4.8: Distribution of moves in Science and Technology

Moves/ Steps	**Frequency** (N = 60)	**Percentage**
Move 1: Background information	**43**	**71.66%***
Move 2: Reporting results	**56**	**93.33%***
Move 3: Summarizing results	**8**	**13.33%****
Move 4: Commenting on results	**53**	**88.33%***
Step 1: Interpreting results	7	**11.66%**
Step 2: Comparing results with literature	48	**80%***
Step 3: Accounting for results	15	**25%**
Step 4: Evaluating results	1	**1.66%**
Move 5: Summarizing the study	**3**	**5%****
Move 6: Evaluating the study	**28**	**46.66%****
Step 1: Indicating limitations	9	15%
Step 2: Indicating significance/advantage	16	26.66%
Step 3: Evaluating methodology	6	10%
Move 7: Deductions from the research	**22**	**36.66%****
Step 1: Making suggestions	4	6.66%

Moves/ Steps	Frequency (N = 60)	Percentage
Step 2: Recommending further research	18	30%
Step 3: Drawing pedagogic implications	0	0%

Note: * = Obligatory move

** = Optional move

N = the total number of texts in this study

% = the occurrence frequency of a move

The results presented in Table 4.8 showed that all seven moves in the analysis framework were used in the data set. According to the specified cut-off posited by Kanoksilpatham (2005), a move occurring with 60% or higher than 60% is obligatory and a move occurring less than 60% is optional. The texts had three obligatory moves--*Move 1 (Background information), Move 2 (Reporting results)* and *Move 4 (Commenting on results)* and four optional moves-- *Move 3 (Summarizing results), Move 5 (Summarizing the study), Move 6 (Evaluating the study)* and *Move 7 (Deductions from the research).*

As can be clearly seen from the table, *Move 2 (Reporting results)* was used in almost all texts and was the most frequent move accounting for 93.33% (56 instances). The second most popular move was *Move 4 (Commenting on results)* which constituted 88.33% (53 instances). *Move 5 (Summarizing the study)* was rarely used with 3 instances (5%).

Regarding steps, *Move 7 Step 3 (Drawing pedagogic implications)* was not used. Like the Applied Linguistics dataset, *Move 4 Step 2 (Comparing results with literature)* had the highest

frequency (48% or 80 instances). One interesting finding that was not in line with those of Applied Linguistics dataset was *Move 7 Step 2 (Recommending further research).* The step had a high frequency with18 instances (30%). This implied that mentioning some aspects of further work was important.

4.2.2.1 Realization of moves and steps in Science and Technology

Each move/step of Science and Technology data set was explored to identify frequent word choices/ phrases. The realization of an individual move found in the corpus of Science and Technology are shown below. Recurrent phrases and word choices are italicized, underlined and marked in bold.

Move 1: Background information

This move explains research questions, aims, methodological and theoretical information.

Examples:

This ethnographic research ***aimed to*** study the ways of life of older people in community under the social, economic, environmental and cultural contexts in northern Thailand.

(Text#ST14, bold and italic added)

The present study ***was undertaken to*** isolate, identify and characterize the bacterial spp. from commercially available bottled drinking water in Bangladesh.

(Text#ST6, bold and italic added)

Move 2: Reporting results

This move provides research findings. Frequently used word choices are *"showed", "The results showed that"," The results revealed that", "It is found that", "Table" "Figure"* and *"Fig."*. Additionally, authors showed research findings by presenting some tables and figures as in result section of research articles.

Examples:

The results showed that there were no differences for age and BMI between fallers and non fallers.

(Text#ST22, bold and italic added)

…***it is found*** that the flow is steady -state up to a large value of Dn and this region increases as the Grash of number becomes large.

(Text#ST23, bold and italic added)

The ethanol productivity of S. cerevisiae G5-7-2 (0.21 g L-1 h-1) was increased two-fold to 0.42 g L-1 h-1 by co-culturing with K. marxianus G2-16-1 at a 1:1 cell ratio (***Table*** 2).

(Text#ST51, bold and italic added)

The error comparisons of forecasting models were shown in ***Table*** 9 and ***Fig.*** 5.

(Text#ST29, bold and italic added)

Move 3: Summarizing results

This move sums up research findings. Word choices/phrases signifying this move are *"in summary", "can be concluded that"* and *"was concluded"*.

Example:

It ***was concluded*** from the study that both Advia 120 and Sysmex XT 4000i provide the correlated CBC results in patients with breast cancer and can be used alternatively.

(Text#ST21, bold and italic added)

Move 4: Commenting on results

This move aims to make comments on research findings and is divided into four steps.

Step 1: Interpreting results

Examples:

However, our results ***suggest*** that ERIC-PCR was more discriminatory than RAPD as it obviously generated the different genomic patterns of Ensifer spp. LP2/12 and LP2/20. ERIC-PCR could become a powerful tool for the molecular genetic analysis of bacterial taxonomy.

(Text#ST55, bold and italic added)

Based on the results of this study, ***it is suggested that*** cellobiose fermenting yeats, such as the K. marxianus G2-16-1 strain, may be useful for SSF-cellulosic ethanol production.

(Text#ST51, bold and italic added)

Step 2: Comparing results with literature

Recurrent word choices/phrases of this step are *"similarly", "similar to", "similarly to previous reports", "agree well with, "contrast to, "consistent with", "confirmed the studies", "reflected the studies of"* and *"previous research reported that".*

Examples:

These results were ***similar to*** those of Suriharn et al. (2011) who reported low yields of 1180 and 1559 kg ha-1 in the first year and the second year, respectively, while Kumar and Sharma (2008) reported that physic nut had an average annual seed yield range of 2000–3000 t ha-1 in semi-arid areas.

(Text#ST3, bold and italic added)

The evidence in this work ***agrees well with*** the result of the previous study by Rattanachan (2007).

(Text#ST8, bold and italic added)

The findings, to some extent, ***reflected the studies of*** Jannadia et al. (2000), Ng et al. (2007)and Cheng et al. (2009).

(Text#ST15, bold and italic added)

Previous research reported that the production process of PCRMA with temperatures higher than 180°C and a mixing and stirring time of longer than 45 min led to primary aging (Lee et al., 2011; González et al., 2012).

(Text#ST9, bold and italic added)

Step 3: Accounting for results

Examples:

Another possible explanation involves patterns of residence after marriage. The Kuy are one of

the few remaining matri local residence societies in Thailand and Laos.

(Text#ST56, bold and italic added)

This behavior of pharmaceutical ***can be also explained*** as different plant species contains different level of different enzymes and chemicals and therefore the same pharmaceutical compounds may react differently in the presence of different substances and may cause different effects on different plant species.

(Text#ST57, bold and italic added)

Step 4: Evaluating results

Move 5 Summarizing the study

This communicative purpose is employed to sum up the study.

Example:

In conclusion, this study obtained novel qualitative dermatoglyphic (i.e., FPT and FP concordance) information by analyzing a large population of Thais from the northeastern region.

(Text#ST35, bold and italic added)

Move 6: Evaluating the study

The function of this move is to demonstrate limitations, inform significance and evaluate research methodology.

Step 1: Indicating limitations

The word choices of this step are *"a limitation"* and *"some limitations"*. Examples:

Generalization should be made cautiously as this study was conducted in Bangkok.

(Text#ST30)

There are some ***limitations*** in the current study. Reviewed film data were supplied by only one broadcast station.

(Text#ST24, bold and italic added)

Step 2: Indicating significance/advantage

The authors frequently used modal verbs like "*may"* and "*could be"* and the words "contribution" and "contribute" to inform the significance of the study.

Example:

Findings from this study ***could be*** useful for health organizations, such as Department of Disease Control, Provincial Public Health Office and hospitals, as guidance in order to consider the type, purpose and years of utilization of refrigerators in that they should suggest the health facilities for vaccine storage.

(Text#ST30, bold and italic added)

Step 3: Evaluating methodology

Example:

These variables statistically significantly predicted pre-evacuation time, F= 15.256, $p < 0.05$, $R^2 = 0.871$, the regression model is a good fit of the data.

(Text#ST26)

Move 7: Deductions from the research

This move helps suggest the implementation of research results, further research studies and possible pedagogical implications.

Step 1: Making suggestions

Examples:

Therefore, community nurses and multidisciplinary teams require cultural sensitivity and adequate reflection on the ways of life of older people to improve their health and wellbeing in this aging society.

(Text#ST14)

Future management efforts should also focus on also improving the condition of the Pinij weir pool, as population growth and urban expansion increases pressure on this water resource to sustain multiple uses including aquaculture.

(Text#ST42)

Step 2: Recommending further research

The authors directly mention further studies with the word choices like *"further studies, "further study", "further research"* and *"further work"*.

Examples:

Further studies should separate adults and the elderly receiving services to reveal different strategies between age groups and should have only one group pre-post test as a means to increase.

(Text#ST20, bold and italic added)

Further studies are required to determine whether these bacteria possess any activities that lead to the inhibition of Plasmodium development in the mosquito gut.

(Text#ST46, bold and italic added)

…***further research*** on these additional issues is recommended.

(Text#ST17, bold and italic added)

…***further work*** on the specific characterization and classical determination of the proteinolytic enzymes and bacteriocins produced (based on molecular weight determination and purification methods) will aid in conclusive exposition…

(Text#ST7, bold and italic added)

Personal pronouns

The frequency and percentage distribution of seven personal pronouns in Science and Technology journals are presented in Table 4.9.

Table 4.9: Distribution of subjective personal pronouns in Science and Technology

Type of subjective personal pronouns	**Number of occurrence**	**Percentage**
1st person *I*	-	-
We	58	34.52%
2nd person *You*	-	-

3rd person *He*	-	-
She	-	-
It	72	42.85%
They	38	22.61%
Total	**168**	**100%**

As shown in Table 4.9, of all 168 pronouns, only three personal pronouns *"we", "it"* and *"they"* were used. Interestingly, unlike the Applied linguistics texts, there were no occurrence of the pronouns *"I", "you", "he"* and *"she"*. This was probably because authors avoided showing their stance and seemed to use passive voice structure in discussions. The most common pronoun was *"it"* with 72 instances (42.85%) whereas the pronoun *"they"* had the least frequency accounting for 38 instances (22.61%). The pronoun *"we"* was the second most frequent pronoun with 58 instances (34.52%).

Table 4.10 presents the frequency and percentage distribution of the pronoun *"we"* in Science and Technology.

Table 4.10: Distribution of the pronoun "*we*" in Science and Technology

Moves/ Steps	**Frequency** (N = 58)	**Percentage**
Move 1: Background information	**16**	**27.58%**
Move 2: Reporting results	**23**	**39.65%**

Moves/ Steps	Frequency (N = 58)	Percentage
Move 3: Summarizing results	**2**	**3.44%**
Move 4: Commenting on results	**11**	**18.96%**
Step 1: Interpreting results	2	3.44%
Step 2: Comparing results with literature	5	8.62%
Step 3: Accounting for results	4	6.89%
Step 4: Evaluating results	-	-
Move 5: Summarizing the study	**1**	**1.72%-**
Move 6: Evaluating the study	**3**	**3.44%**
Step 1: Indicating limitations	-	**-**
Step 2: Indicating significance/advantage	1	1.72%
Step 3: Evaluating methodology	1	1.72%
Move 7: Deductions from the research	**3**	**5.17%**
Step 1: Making suggestions	2	3.44%
Step 2: Recommending further research	1	1.72%
Step 3: Drawing pedagogic implications	-	**-**

As shown in Table 4.10, unlike the Applied Linguistic corpus, the pronoun "*we*" was identified in all moves. *Move 2 (Reporting results)* had the highest frequency with 23 instances or 39.65%, followed by *Move 1(Background information)* with 16 instances (39.65%) and *Move 4 (Commenting on result*s) with 11 instances (18.96%). *Move 5 (Summarizing the study)* had the lowest occurrence with only one instance or 1.72%,

Like the Applied Linguistics corpus, the authors tended to use the pronoun *"we"* in reporting their findings to show their identity and confidence. The recurrent phrase for reporting findings was *"We found…"*. On the contrary, they rarely used the pronoun *"we"* in the summary of the study. Some examples of the pronoun "*we*" in their contexts are as follows:

Move 1: Background information

Examples:

In this regard, ***we*** investigated whether PJET hinders platelet aggregation in vitro and thrombus formation in vivo.

(Text#ST41, bold and italic added)

We also evaluated the efficiency of using agar compared with alginate and perlite as cell immobilization materials to promote survival of the inoculant after being introduced into soil.

(Text#ST55, bold and italic added)

Move 2: Reporting results

Examples:

For WBC count, ***we*** also found a good correlation between 2 analyzers (r = > 0.986) for patients with breast cancer.

(Text#ST21, bold and italic added)

…***we*** found that this isolate had high efficiency for solubilization of tricalcium phosphate and produced only acetic acid.

(Text#ST34, bold and italic added)

Move 4 Step 2: Comparing results with literature

Example:

We cannot compare our results to the study of Lord because the level of physical activity and the life style of the elderly in our studies might be different from theirs.

(Text#ST22, bold and italic added)

Move 6 Step 3: Evaluating methodology

Example:

However, such additive models do not fit these data anywhere near as well as the model ***we*** have fitted, which involves combining the 7 years and 15 regions into a single factor with 105 levels.

(Text#ST37, bold and italic added)

Move 7 Step 2: Recommending further research

Example:

Taking all of these results into account, ***we*** recommend future study of certain aspects of M3,

such as long-term (more than one year) in vivo testing, before use of this material as a bone substitute.

(Text#ST38, bold and italic added)

Table 4.11 lists the frequency and percentage distribution of inclusive *"we"* and exclusive *"we"* in Science and Technology.

Table 4.11: Distribution of inclusive *"we"* and exclusive *"we"* in Science and Technology

Type	**Number of occurrence**	**Percentage**
Inclusive *"we"*	5	8.62%
Exclusive *"we"*	53	91.37%
Total	58	100%

As can be seen in Table 4.11, the exclusive *"we"* was far more common than the in inclusive one. Science and Technology authors used an exclusive *"we"* in 53 instances (91.37%),

while they used an inclusive *"we"* in only 5 instances (8.62%). One possible explanation is that authors preferred to convey their identity and confidence in their studies.

Some examples of the inclusive *"we"* and the exclusive *"we"* in their original contexts are as follows:

Inclusive *"we"*

Examples:

The big steps ahead are not to merely fix the current problems but to articulate how the future will emerge, what the future will look like, how future systems should be, how the future will address

current problems and how ***we*** can make a better system.

(Text#ST32, bold and italic added)

Acinetobacter have the ability to reduce the number of Plasmodium oocysts in the midgut of An. gambiae [26], so ***we*** could use them directly to control the transmission of malaria in the malaria vector.

(Text#ST46, bold and italic added)

Exclusive *"we"*

Examples:

We initially examined the virulence of the selected HP03, which was able to cause high mortality at a dose of 103 CFU per shrimp within 6 h post injection, indicating that the isolates were highly virulent and lethal.

(Text#ST4, bold and italic added)

In addition, ***we*** conducted a comparison of FPT across populations by directly comparing FPT in the Thai population to other Asian, Africanand Caucasian populations.

(Text#AL35, bold and italic added)

In our study, ***we*** have also observed decrease activities of GPx and SOD in diabetic rats as compared to solvent-control rats. A decreased level of these antioxidants can lead to excessive

accumulation of superoxide and peroxy radicals, which in turn generate hydroxyl radical resulting in the initiation and propagation of lipid peroxidation [8, 23].

(Text#ST40, bold and italic added)

Chapter summary

In conclusion, Chapter IV presented and discussed the results of the study. The study revealed that the discussion sections of Applied Linguistics and Science and Technology had the same obligatory and optional moves. Three moves fell into an obligatory group --*Move 1 (Background information), Move 2 (Reporting results)and Move 4 (Commenting on results)*. Four moves were considered optional --*Move 3 (Summarizing results), Move 5 (Summarizing the study), Move 6 (Evaluating the study)* and *Move 7 (Deductions from the research). Move 5 (Summarizing the study)* was the least frequently occurring move in both data sets. As for the move structure, the most frequent move pattern of Applied Linguistics was different from that of Science and Technology. The two-move pattern *M2-M4* was prevalent in Applied Linguistics and the three- move pattern *M1-M2-M4* in Science and Technology. Regarding personal pronouns, exclusive *"we"* outnumbered inclusive one in both data sets.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

Chapter V presents a brief summary, discussion and recommendations for further studies. This chapter is divided into four main parts. The first part is a research summary. The second section is the summary of findings. The third part is the discussion of research findings. The last part covers research implications and some recommendations for further studies.

5.1 Research summary

The current study has been set out to explore discussion sections presented in international journals in the field of Applied Linguistics and Science and Technology published in Thailand and to identify their moves (Obligatory moves and optional moves) and frequent move sequences. The corpus consisted of 60 discussion sections of four Applied Linguistics journals (*Journal of English Studies, NIDA Language and Communication Journal, PASAA Journal* and *rEFLections*) and 60 discussion sections of four Science and Technology journals (*Chiang Mai Journal of Science, KMITL Science and Technology Journal, Science and Technology Asia* and *Suranaree Journal of Science and Technology*). With regard to the number of words, it is found that on average, Applied Linguistics journal tended to contain more words than Science and Technology journals. Applied Linguistics journals had 71,576 words in total and an average of 1,193 words whereas Science and Technology journals contained 38,360 words and an average of

639 words. One interesting finding of the discussion parts of Science and Technology journals was the inclusion of figures and tables for explaining and discussing results.

The analysis framework was that of Yang and Allison's (2003). The model consisted of 7 moves --*Move 1 (Background information)*, *Move 2 (Reporting results)*, *Move 3 (Summarizing results)*, *Move 4 (Commenting on results)*, *Move 5 (Summarizing the study)*, *Move 6 (Evaluating the Study)* and *Move 7 (Deductions from the Research)*--and 10 steps--*Move 4 Step 1 (Interpreting results), Move 4 Step 2 (Comparing results with literature), Move 4 Step 3 (Accounting for results)* and *Move 4 Step 4 (Evaluating results), Move 6 Step 1 (Indicating limitations), Move 6 Step 2 (Indicating significance/advantage)* and *Move 6 Step 3 (Evaluating methodology), Move 7 Step 1 (Making suggestions), Move 7 Step 2 (Recommending further research)* and *Move 7 Step 3 (Drawing pedagogic implications*). The study sought to examine the occurrence of personal pronouns (First singular personal pronoun and first plural personal pronoun). The identification of moves and move structures were hand-tagged with the co-coder for inter-rater reliability. The frequency of personal pronouns was identified by the concordance program called *AntConc3.2.4w*. However, the classification of exclusive "*we"* and inclusive "*we"* was hand-tagged with an experienced co-coder. The reliability level was calculated with Cohen's Kappa value. The intra-rater reliability was also applied to assess the reliability of analyzing texts by the researcher.

5.2 Summary of the findings

This part concludes the results of the study in response to two research questions presented in Chapter I. There were both similarities and differences in the move structures and rhetorical move patterns of discussion sections of both corpora as summarized below.

Research Question 1

How are rhetorical move patterns of English discussion sections in international journals of Applied Linguistics published in Thailand similar to or different from those of Science and Technology?

This part demonstrates how moves in the corpus were organized. Although there were variations of move sequences in the corpora, frequently used move patterns were identified. Table 5.1 summarizes the three most commonly used rhetorical move patterns found in the fields of Applied Linguistics and Science and Technology.

Table 5.1: Distribution of move patterns in Applied Linguistics and Science and Technology

Applied Linguistics		**Science and Technology**	
Move pattern	**Percentage**	**Move pattern**	**Percentage**
M2-M4	31.66%	*M1-M2-M4*	30%
M1-M2-M4	18.33%	*M1-M2-M4-M7*	25%
M1-M2-M4-M7	15%	*M1-M2-M4-M6*	20%

It can be concluded that there were some differences in the move structures of Applied Linguistics journals and Science and Technology journals. Overall, the discussion sections in the corpus had ranges from two to six moves. Three most frequently occurring move sequences of Applied Linguistics field were *M2-M4* (31.66%), *M1-M2-M4* (18.33%) and *M1-M2-M4-M7* (15%). Three most frequently occurring move sequences of Science and Technology field were*M1-M2-M4* (30%), *M1-M2-M4-M7* (25%) and *M1-M2-M4-M6* (20%). Unlike Science and Technology field, authors in Applied Linguistics field avoided mentioning research questions, aims, purposes and theoretical or methodological information. They preferred to inform readers the research results along with the comment of results. On the contrary, Science and Technology corpus showed the authors' preference to include some information of research studies followed by the portrayal of research results with interpreting and evaluating results, comparing results with literature and accounting for results.

Research Question 2

Which obligatory and optional moves are used in English discussion sections in international journals of Applied Linguistics and Science and Technology published in Thailand?

This part summarizes which moves authors included in their discussion sections. Table 5.2 presents the descriptive statistics of obligatory and optional moves in Applied Linguistics and Science and Technology journals.

Table 5.2: Distribution of moves in Applied Linguistics and Science and Technology

Applied Linguistics		**Science and Technology**	
Obligatory move	**Percentage**	**Obligatory move**	**Percentage**
Move 1: Background information Move 2: Reporting results Move 4: Commenting on results	68.33% 100% 100%	Move 1: Background information Move 2: Reporting results Move 4: Commenting on results	71.66% 93.33% 88.33%
Optional move	**Percentage**	**Optional move**	**Percentage**
Move 3: Summarizing results Move 5: Summarizing the study Move 6: Evaluating the study Move 7: Deductions from the research	15% 6.66% 31.66% 33.33%	Move 3: Summarizing results Move 5: Summarizing the study Move 6: Evaluating the study Move 7:Deductions from the research	13.33% 5% 46.66% 36.66%

In terms of moves, the corpora of Applied Linguistics and Science and Technology fields had the same obligatory moves-- *Move 1 (Background information)*, *Move 2 (Reporting results)*, *Move 4 (Commenting on results)*-- and optional moves-- Move 3 *(Summarizing the study)*, *Move 5 (Summarizing the study)*, *Move 6 (Evaluating the study)*, *Move 7 (Deductions from the research)*. Interestingly, *Move 2* and *Move 4* were used extensively and occurred in all texts of Applied Linguistics field accounting for 100%. The use of *Move 2* aimed at creating more explicit

information on results before commenting on them. Writers of both corpora rarely included the brief account or summary of the study. *Move 5* was therefore the least frequently occurring move in the corpus with 6.66% in the field of Applied Linguistics and 5% in the field of Science and Technology. Moreover, interestingly both corpora showed the co-occurrence and the cycling of *Move 2 (Reporting results)* and *Move 4 (Commenting on results)* in which *Move 2* preceded *Move 4*.

5.3 Discussion

The present study aimed at findings answers of two research questions. The first question attempted to reveal similarities and differences of rhetorical move patterns of English discussion sections in the fields of Applied Linguistics and Science and Technology in international journals published in Thailand. The second one sought out and identified obligatory and optional moves/steps in those data sets. The analysis was conducted on 120 discussion sections--60 taken from Applied Linguistics journals and 60 taken from Science and Technology journals.

Firstly, to some extent, the findings revealed that discussion sections in both corpora were patterned. However, the most frequently occurring move sequences of both corpora were different--the two-move sequence *M2-M4* in Applied Linguistics journals and the thee-move pattern *M1-M2-M4* in Science and Technology journals. The findings were not inconsistent with those of Sithlaothavorn and Trakulkasemmuk (2016). According to Sithlaothavorn and Trakulkasemmuk (2016), discussion sections were not patterned. As for the opening move, the majority of both data sets began their discussions with *Move 2 (Reporting results).*

Secondly, the analyses revealed that there were no significant differences in the occurrence of moves in both corpora although the overall frequencies of some moves/steps were different. The findings indicated that *Move 1 (Background information), Move 2 (Reporting results)* and *Move 4 (Commenting on results)* were obligatory. They were crucial and should be stated in discussion sections in both fields. The writers provided some information of their studies and reported and discussed their findings. It was noticeable that *Move 4 Step 2 (Comparing results with literature)* was the most frequent step used to realize *Move 4 (Commenting on results)* in both corpora. The findings ran counter to those conducted by Yang and Allison (2003). They found that *Move 2 (Reporting results)*and *Move 4 (Commenting on results)* were obligatory. In addition, as stated by Yang and Allison (2003), *Move 4 (Commenting on results)* outnumbered *Move 2 (Reporting results).*The importance and frequency of Move 2 was also in line with previous research studies (Amirian et al., 2008: Holmes, 1997: Peacock, 2002; Swales, 19990)

Thirdly, both corpora had the same optional moves--*Move 3 (Summarizing the study), Move 5 (Summarizing the study), Move 6 (Evaluating the study)* and *Move 7 (Deductions from the research).* This implied that to some extent both data sets shared the same convention in writing discussion sections. The result of the study did not agree with Jalilifar et al. (2012). Jalilifar et al.'s (2012) revealed the low frequency of the discussion of research findings to previous studies. The results showed that authors realized that readers had obtained the detailed findings in *Move 2 (Reporting results).* This may lead to the less frequent use of *Move 5 (Summarizing the study)* in

both corpora. However, it should be noted that all of the seven moves in Yang and Allison's (2003) model did not occur in a linear fashion. Both data sets had no emerging moves.

The results discussed above seem to suggest that the corpora analyzed showed both similarities and differences. The discrepancies found between Applied Linguistics journals and Science and Technology journals may be attributed to the different nature of the disciplines.

5.4 Implications and recommendations for further studies

The findings of the study shed some light on the nature of discussion sections in the fields of Applied Linguistics and Science and Technology. They conveyed the overall occurrence of moves/steps, move structures and recurrent word choices/phrases and personal pronouns in the target genre. The study has some implications for inexperienced writers, novice scholars and graduate students. It raises their awareness and contributes towards what and how scholars and researchers in the target discourse community discuss research findings. Moreover, the study can be of benefit to EAP/ ESP instructors who face difficulties in creating course contents and materials to enhance their learners' ability in writing discussion sections.

Recommendations for further studies are as follows:

Firstly, for further research studies, the corpus size should be expanded to increase its representativeness and to yield more conclusive results. Larger corpora would provide more instances of moves and more chances to gain a wider range of moves/steps, and more recurrent word choices/phrases and personal pronouns realizing each communicative purpose.

Secondly, it should be noted that this study has examined only discussion sections in the fields of Applied Linguistics and Science and Technology. Further research should be carried out to investigate discussion sections of other disciplines to convey more explicit pictures of disciplinary variation.

Thirdly, the analyses have focused on English discussion sections of research articles in Thai context. Further studies should be extended to the comparison of discussion parts between a local context and other contexts to provide a greater awareness and a clearer picture on their similarities and differences.

Lastly, linguistic analysis of the study has greatly concentrated on recurrent word choices/phrases and personal pronouns. Further studies may be required to explore other linguistic features and discourse markers since the analyses are useful for novice writers and non-native speakers of English in writing more effective discussion sections.

BIBLIOGRAPHY

BIBLIOGRAPHY

Amirian, Z., Kassaian, Z., and Tavakoli, M. 2008. "Genre analysis: An investigation of discussion sections of applied linguistics research articles." ***The Asian ESP Journal*** 4, 1: 39-63.

Amnuai, W. 2017. "The textual organization of the discussion sections of accounting research articles". ***Kasetsart Journal of Social Sciences.*** Retrieved from https://doi.org/10.1016/j.kjss.2017.10.007

Amnuai, W., and Wannaruk, A. 2013. "Investigating move structure of English applied linguistics research article discussions published in international and Thai journals." ***English Language Teaching*** 6, 2: 1-13.

Atai, M. R., and Falah, S. 2004. "A contrastive genre analysis of result and discussion sections of applied linguistic research articles written by native and non-native English speakers with respect to evaluated entities and ascribed values." Proceedings of the Pan Pacific Association of Applied Linguistics (PAAL) Conference, Japan.

Bhatia, V. K. 1993. *Analysing Genre -- Language Use in Professional Settings*, London: Longman, Applied Linguistics and Language Study Series.

Biber, D., Connor, V., and Upton, T. (2007). *Discourse on the move: Using corpus analysis to describe discourse structure*. Amsterdam: John Benjamins Publishing.

Cao, C., and Guo, S. 2015. "Genre analysis and advanced English teaching." ***Theory and Practice in Language Studies*** 5, 12: 2613-2618.

Dobakhti, H. 2016. "A genre analysis of discussion sections of qualitative research articles in applied linguistics." ***Theory and Practice in Language Studies*** 6, 7: 1383-1389.

Dudley-Evans, T. 1994. "Genre analysis: An approach to text analysis for ESP." In M. Coulthard (eEd.), **Advance in written text analysis**, pp. 219-228. London: Routledge.

Dudley-Evans, T. 2000. "Genre analysis: A key to a theory of ESP." ***Ibérica: Revista de la AsociaciónEuropea de Lenguas para Fines Específicos (AELFE)*** 2, 3-11.

Dujsik, D. 2013. "A genre analysis of research article discussions in applied linguistics." ***Language Research*** 49, 2: 453-477.

Fallihi, M. M., and Erzi, M. 2003. "Genre analysis in language teaching: An investigation of the structure of the discussion of language-teaching-journal articles." ***IJAL*** 6, 1: 69-81.

Flowerdew. J. 2005. "An integration of corpus-based and genre-based approaches to text analysis in EAP/ESP: Counting criticisms against corpus-based methodologies." ***English for Specific Purposes*** 24, 3: 321-332.

Henry, A., and Roseberry, R. L. 2009. "Move registers and language teaching." ***The Journal of Asia TEFL*** 6, 2: 101-119.

Holmes, R. 1997. "Genre analysis and the social sciences: An investigation of the structure of research article discussion sections in three disciplines." ***English for Specific Purposes*** 16, 4: 321-337.

Hyland, K. 2007. "Genre pedagogy: Language, literacy and L2 writing instruction." ***Journal of Second Language Writing*** 16: 148-164.

Hyland, K. 2008. "Plenary Speeches, Genre and academic writing in the disciplines". ***Language Teaching*** 41, 4: 543-562.

Jalilifar, A. 2010. "Research article introductions: Sub-disciplinary variations in Applied Linguistics." ***The Journal of Teaching Language Skills*** 2, 2: 29-55.

Jalilifar, A., Hayati, A. M., and Namdari, N. 2012. "A Comparative study of research article discussion sections of local and international applied linguistic journals." ***The Journal of Asia TEFL*** 9: 1-29

Kanoksilapatham, B. 2005. "Rhetorical structure of biochemistry research articles." ***English for Specific Purposes*** 24: 269-292.

Kanoksilapatham, B. 2007. "Writing scientific research articles in Thai and English: Similarities and differences." ***Silpakorn University International Journal*** 7, 172-203.

Kanoksilapatham, B. 2012a. "Facilitating scholarly publication: Genre characteristics of English research article introductions and methods." ***The Southeast Asian Journal of English Language Studies*** 18, 4: 5-19.

Kanoksilapatham, B. 2012b. "In search of the generic identity of the discussion section: Three engineering sub-disciplines." ***Taiwan International ESP Journal*** 4, 2: 1-26.

Khorramdel, M., and Farnia, M. 2017. "Comparative generic analysis of discussion sections of English and Persian dentistry research articles." ***MJAL*** 9, 1: 28-43.

Kirkpatrick, A. 2012. English in ASEAN: "Implications for regional multilingualism." ***Journal of Multilingual and Multicultural Development*** 33, 4: 331-344.

Lewin, B.A., Fine, J., and Young, L. 2001. **Expository Discourse: A genre-based approach to social science research texts.** New York: Continuum.

Lieungnapar, A., and Todd, R. W. 2011. Top-down versus bottom-up approaches toward move analysis in ESP. Proceeding of International Conference: Doing Research in Applied Linguistics, Bangkok, pp. 1-10.

Lores, R. 2006. "I will argue that': First person pronouns as metadiscoursal devices in research article abstracts in English and Spanish." ***ESP Across Cultures*** 3: 23-40.

McHugh, M. L. 2012. "Interrater reliability: The Kappa statistic." ***Biochem Med (Zagreb)*** *22*, 3: 276–282.

Mahzari, A., and Maftoon, P. (2007). "A contrastive study of the introduction section of English and Persian medical research articles." ***Iranian Journal of Language Studies (IJLS)*** 1, 3: 201-214.

Martin, P. M. 2003b. "Personal attribution in English and Spanish scientific texts." ***BELLS: Barcelona English Language and Literature Studies*** 12: 1-12.

Martin-Martin, P. 2013. "The teaching of academic writing to English as a second language student: A functional genre-based approach." ***Revista de Lenguas para Fines Específicos*** 19: 329-351.

Nguyen, L. T., and Pramoolsook, I. 2015. "Move analysis of results-discussion chapters

in TESOL Master's theses written by Vietnamese students." **The Southeast Asian Journal of English Language Studies** 21, 2: 1-15.

Nodoushan, M. A. 2012. "A Structural Move Analysis of Discussion Sub-genre in Applied Linguistics." Proceeding of 6th International Conference on Languages, E-learning and Romanian Studies: 1-12.

Nodoushan, M. A., and Khakbaz, N. I. 2011. "Theses 'Discussion' sections: A structural move analysis." ***International Journal of Language Studies (IJLS)*** 5, 3: 111-132.

Nwogu, K. N. (1997). "The medical research paper: Structure and functions." ***English for Specific Purposes*** 16, 2: 119-138.

Orwin, R. G. 1994. "Evaluating coding decisions." In H. Cooper and L. Hedges (Eds.), **The handbook of research synthesis**, pp. 139-162, New York: Russell Sage Foundation.

Peacock, M. 2002. "Communicative moves in the discussion section of research articles." ***System*** 30, 4: 479-497.

Pojanapunya, P., and Todd, R. W. 2011. "Relevance of findings in results to discussion sections in applied linguistics research." **Proceedings of the International Conference: Doing research in Applied Linguistics**.

Rasmeenin, C. 2006. "A structural move analysis of MA thesis discussion section in applied linguistics" Master's Thesis, Mahidol University.

Sithlaothavorn, J., and Trakulkasemsuk, W. (2016). "A move analysis of research discussion in English articles published in Thai and international journals." ***rEFLections*** 21: 24-46.

Skulstad, A. S. 1999. "Genre awareness in ESP teaching: Issues and implications." ***International Journal of Applied Linguistic*s** 9, 2: 285-298.

Swales, J. M. 1981. **Aspects of article introductions.** Birmingham, England: Language Studies Unit, University of Aston.

Swales, J. M. 1990. **Genre analysis: English in academic and research setting.** Cambridge: Cambridge University Press.

Upton,T. A., and Cohen, M. A. 2009. "An approach to corpus-based discourse analysis: The move analysis as example." ***Discourse Studies*** 11, 5: 585-605.

Varaprasad, C. 2013. Effects of Genre-based framework on Students' Writing. In Proceedings of the 3rd International Conference on Future of Education, Florence Italy (pp. 621-624). Libreriauniversitaria.it edizioni: Pixel.

Yang, R., and Allison, D. 2003. "Research articles in applied linguistics: Moving from results to conclusions." ***English for Specific Purposes*** 22: 365-385.

Yang, W. 2011. "Evaluating the effectiveness of genre-based instruction: A writing course of English for hospitality and tourism." ***Asian EFL Journal*** 13, 4: 175-193.

APPENDICES

APPENDIX A

NUMBER OF WORDS IN APPLIED LINGUISTICS JOURNALS

NUMBER OF WORDS IN APPLIED LINGUISTICS JOURNALS

Text number	Number of words
#AL1	998
#AL2	862
#AL3	2,079
#AL4	452
#AL5	804
#AL6	1,877
#AL7	242
#AL8	538
#AL9	401
#AL10	1,839
#AL11	629
#AL12	515
#AL13	1,183
#AL14	2,198
#AL15	1,116
#AL16	1,013
#AL17	1,232
#AL28	1,604
#AL29	471
#AL20	1,355

Text number	Number of words
#AL21	957
#AL22	965
#AL23	2,299
#AL24	1,056
#AL25	2,039
#AL26	2,832
#AL27	1,058
#AL28	1,311
#AL29	353
#AL30	1,115
#AL31	866
#AL32	383
#AL33	522
#AL34	1,052
#AL35	1,961
#AL36	1,623
#AL37	590
#AL38	675
#AL39	1,929
#AL40	643
#AL41	4,191
#AL42	560
#AL43	2,285

Text number	Number of words
#AL44	1,007
#AL45	316
#AL46	1,189
#AL47	922
#AL48	2,183
#AL49	1,618
#AL50	460
#AL51	923
#AL52	1,434
#AL53	2,058
#AL54	608
#AL55	1,531
#AL56	845
#AL57	429
#AL58	1,470
#AL59	529
#AL60	1,381

APPENDIX B

NUMBER OF WORDS IN SCIENCE AND TECHNOLOGY JOURNALS

NUMBER OF WORDS IN SCIENCE AND TECHNOLOGY JOURNALS

Text number	Number of words
#ST1	144
#ST2	350
#ST3	713
#ST4	252
#ST5	466
#ST6	415
#ST7	473
#ST8	314
#ST9	442
#ST10	628
#ST11	987
#ST12	397
#ST13	301
#ST14	312
#ST15	1,002
#ST16	321
#ST17	658
#ST18	1,132
#ST19	785
#ST20	1,084
#ST21	572
#ST22	1,955

Text number	Number of words
#ST23	516
#ST24	584
#ST25	1,526
#ST26	417
#ST27	357
#ST28	299
#ST29	600
#ST30	667
#ST31	683
#ST32	579
#ST33	272
#ST34	1,105
#ST35	678
#ST36	813
#ST37	441
#ST38	1,340
#ST39	549
#ST40	495
#ST41	434
#ST42	443
#ST43	1,165
#ST44	445
#ST45	599

Text number	**Number of words**
#ST46	817
#ST47	485
#ST48	490
#ST49	518
#ST50	739
#ST51	692
#ST52	276
#ST53	369
#ST54	250
#ST55	844
#ST56	1,174
#ST57	396
#ST58	1,052
#ST59	1,195
#ST60	375

APPENDIX C

NUMBER OF WORDS IN SCIENCE AND TECHNOLOGY JOURNALS

CODING FORM

NUMBER OF WORDS IN SCIENCE AND TECHNOLOGY JOURNALS

CODING FORM

Field : _____

Text number : _____

Number of words : _____

Moves/ Steps	Frequency	Remarks
Move 1: Background information		
Move 2: Reporting results		
Move 3: Summarizing results		
Move 4: Commenting on results Step 1: Interpreting results Step 2: Comparing results with literature Step 3: Accounting for results Step 4: Evaluating results		
Move 5: Summarizing the study		
Move 6: Evaluating the study Step 1: Indicating limitations Step 2: Indicating significance/advantage Step 3: Evaluating methodology		
Move 7: Deductions from the research Step 1: Making suggestions Step 2: Recommending further research Step 3: Drawing pedagogic implications		

Number of occurrence															
No	**M1**	**M2**	**M3**	**M4**				**M5**	**M6**			**M7**			**Total**
				S1	S2	S3	S4		S1	S2	S3	S1	S2	S3	

Yang and Allison's (2003) model

Move 1: Background information
Move 2: Reporting results
Move 3: Summarizing results
Move 4: Commenting on results Step 1: Interpreting results Step 2: Comparing results with literature Step 3: Accounting for results Step 4: Evaluating results
Move 5: Summarizing the study
Move 6: Evaluating the study Step 1: Indicating limitations Step 2: Indicating significance/advantage Step 3: Evaluating methodology
Move 7: Deductions from the research Step 1: Making suggestions Step 2: Recommending further research Step 3: Drawing pedagogic implications

Details of moves and steps

Move 1: Background information

(The background information details research questions, aims, methodological and theoretical information.)

Move 2: Reporting results

(This move shows findings.)

Move 3: Summarizing results

(The aim of this move is to sum up findings.)

Move 4: Commenting on results

(This move conveys comments on research findings and is divided into four steps.)

Step 1: Interpreting results

Step 2: Comparing results with literature

Step 3: Accounting for results

Step 4: Evaluating results

Move 5: Summarizing the study

(This communicative purpose sums up the study.)

Move 6: Evaluating the study

(The move shows limitations and significance of the study and assesses research methodology.)

Step 1: Indicating limitations

Step 2: Indicating significance/ advantage

Step 3: Evaluating methodology

Move 7: Deductions from the research

(This move suggests the implementation of research findings, advice for further studies and possible pedagogical implications.)

Step 1: Making suggestions

Step 2: Recommending further research

Step 3: Drawing pedagogic implications

Figure 8: Coding form

BIOGRAPHY

Name	Tiranun Wongwiwat
Date of Birth	April, 2516
Place of Birth	Bangkok
Current Address	40/79 Ratchadapisek 32 Yak 7-7 Ratchadapisek Road, Chankasem Chatuchack, Bangkok 10900
Work Position	Lecturer of English Sripatum University
Educational Attainment	B.E. 2538: Bachelor of Arts (English) Chulalongkorn University B.E. 2541: Master of Arts (English) Chulalongkorn University B.E. 2544: Master of Arts (Teaching English as a Foreign Language) Thammasat University B.E. 2560: Doctoral degree (English Language Studies) Thammasat University