Exploring Undergraduate English-as-a-Foreign-Language (EFL) Students' Knowledge about the Elements in Argumentation and Their EFL Writing Performance

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ABSTRACT

For English-as-a-foreign-language (EFL) students writing in English is a complex process as successful writing performance depends on many factors, such as writing topic, genre, task, linguistic knowledge, motivation, and cognition. Knowledge is believed to be an important ingredient in students' writing development as it plays a key role in every writing model in first language (L1) and second language (L2) contexts (Graham, 2012). English writing has long been a skill area that has not been given enough time in the EFL curriculum at the tertiary level in China. Because L2 English writing is taught only as a supplement to the university College English courses (Zhang, 2008, 2013, 2016), most EFL teachers complain that there is insufficient time to teach writing; undergraduate students also feel that they do not learn how to write well in EFL. There has been little research, however, into Chinese EFL undergraduate students' writing development as a result of teachers' instructional practices in the classroom. Research into students' prior knowledge and writing performance, as well as any changes that occur through writing instruction and practice, is needed (Wette, 2017). The purpose of this study, therefore, was to address this gap in the research.

Adopting a quasi-experimental mixed-methods design this intervention research, over an eight-week writing course from September 2016 to November 2016, included an experimental group (N = 59) and a comparison group (N = 59), with 118 undergraduate students. The study focused on changes of Chinese undergraduates' knowledge and writing performance in argumentation in an English writing course after engaging in genre-based writing practices to enhance students' genre knowledge and writing performance. The experimental group was taught with a genre-based writing approach and the comparison group experienced their conventional writing instruction. Data were collected through pre-and post- classroom writing tests, L2 genre knowledge questionnaires, and interviews. To establish the changes in EFL students' knowledge of argumentation, 118 participants completed pre- and post-test stimulated recall

questionnaires and 8 of these participants had stimulated recall interviews. To assess L2 students' writing development, 236 argumentative written texts were collected, which included 118 pre-test writing texts and 118 post-test writing texts.

To analyse the data, Tardy's (2009) Genre Knowledge Model was used to examine Chinese EFL students' knowledge about argumentative writing from three dimensions: Formal knowledge, process knowledge, and rhetorical knowledge. Analysis of the data revealed a positive change in the experimental group students' knowledge about argumentation following the genre-based writing treatment. The change was more evident in the way they displayed their knowledge of the structure of discourse moves and language features specific to the argumentative genre than their expressed knowledge about the content, process, and the argumentative "genre's intended purposes" and audience awareness. Genre-based writing instruction was more effective overall than the conventional writing approach and enhanced students' self-reflection on their knowledge of argumentation. There was also a positive effect of the genre-based approach on students' argumentative writing development, including discourse move structure, writing substance, and overall writing quality than the conventional writing approach in helping students to write an argumentation. Viewed holistically, the nature of students' positive changes in genre knowledge indicated that two patterns of knowledge development helped to raise students' writing performance after both the genre-based and conventional writing instruction. That is, students' more essential knowledge of argumentation about every component, and their development of aggregated knowledge elements about argumentation, appeared to have mediated their performance in argumentative writing.

The findings have implications for understanding students' writing development and provide empirical evidence of the benefits of the genre-based approach used in this study in enhancing Chinese EFL students' genre knowledge and writing performance. The limitations of this research and recommendations for future studies are also discussed.

DEDICATION

To my family

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ANCOVA   Analysis of covariance

CA   Content analysis

CC   Counterargument claim

CCE   Claim-counterargument claim-evaluation

CD   Counterargument data

CECR   College English curriculum Requirements

CES   College English syllabi

CET 4   College English test band 4

CET 6   College English test band 6

CF   Consent form

DV   Dependent variables

EAP   English for academic purposes

EFL   English-as-a-foreign-language

ESL   English-as-a-second-language

ESP   English for specific purposes

GCET   Guideline on college English teaching

IBC   Introduction-body-conclusion

ITAC   Introduction-thesis-argument-counterargument-evaluation

IV   Independent variable

L1   First or native language

L2   Second or foreign language

LW   Learning-to-write

MEd   Mater of education

NR   New Rhetoric

PIS   Participant information consent

PS   Problem-solution

RC   Rebuttal claim

RD   Rebuttal data

SFL   Systemic functional linguistics

ST   Sociocultural theory

TA   Thematic analysis

TA   Thesis-argument

TEC   Thesis-evaluation-conclusion

ZPD   Zone of proximal development

CHAPTER ONE

INTRODUCTION

1.1 Overview

This introductory chapter first provides a rationale for the exploration of students' development in argumentation in section 1.2. Then, in 1.3, it describes the research context which includes Chinese undergraduate students' English learning experiences, the new direction of tertiary English education in China, a brief review of research on tertiary level English writing in China, and the current situation of argumentative writing instruction in China. Following this, section 1.4 briefly provides outlines of the theories for this thesis. In section 1.5, key terms in this research are presented. Finally, the research questions and the structure of my thesis are described.

1.2 Rationale for the Study

The primary motivation for me to conduct this study is the fact that the writing development in English as a Foreign Language (EFL) of undergraduate students remains under-researched. The needs of these students are overlooked in the English for Specific Purposes (ESP) and English for Academic Purposes (EAP) domains, as ESP and EAP curricula are often under-developed in EFL instructional contexts. In addition, research on college students' writing development in the EFL context focuses largely on the graduate level, that is, it focuses on a needs-analysis and writing course design in the disciplines for graduate students (e.g., medical English writing, engineer English writing, or business English writing); there is little attention to EFL undergraduate students in the widely available literature on second and foreign language writing education.

Undergraduate EFL students' writing development is not a process of automatically transferring grammar knowledge from high school to university level. Without a good command of language and situational sensitivity, non-native English

speaker students face multiple challenges in their writing development (Angelova & Riazantseva, 1999; Negretti, 2015; Tardy, 2009). In addition, as Barks and Watts (2001) pointed out, when non-native speakers enter the field of EAP, they have to deal with new language and new writing conventions and juggle their already acquired language and writing conventions; many other situational factors may also play an important role in their writing practices. In other words, they have to cope with multiple challenges to complete an arduous task, as is particularly the case in present-day China.

English as a curriculum subject in Chinese higher education is undergoing comprehensive changes. Chinese universities are required to offer EAP/ ESP courses instead of a general English course. In other words, the traditional English curriculum with the teaching of grammar, reading, and translation will gradually change into an academic English writing course, professional reading course, and academic communication course (Cai, 2015, 2017). A major challenge for Chinese undergraduates is that they do not receive a transitional programme for academic English development in their first and second university years and have to move directly from the traditional English instruction about language knowledge to the ESP writing course in their fourth university year. A process to help undergraduate students manage this challenge is in dire need. Many researchers suggest drawing on theories, models, and the findings of research on writers' development in L2 context (Huang, 2014; Yasuda, 2015). To date, there has been little investigation into Chinese undergraduate students' development about knowledge of writing and performance of writing, or into the impact of the genre-based writing instruction.

Given the paucity of research in this area, this PhD research was established to investigate Chinese EFL undergraduates' development in genre knowledge and writing performance after the genre-based writing instruction. It examined a group of second-year Chinese university undergraduates' EFL writing development after implementation of a genre-based instructional programme to prepare them for successful transitioning into academic writing courses in their third year. The findings are expected to inform

not only EAP/ESP writing pedagogy in the EFL context, but also to extend the theoretical and empirical understandings of the EFL writing development of non-native English-speaker students.

1.3 The Research Context

This research was conducted in mainland China with all the data came from a university in a provincial capital city in central China. As one of the oldest institutions in China, this university has an excellent reputation for its achievements in science and engineering education. This university has been making efforts in English educational and pedagogical reform since 2015. College English teachers were encouraged to investigate the inclusion of EAP and ESP courses in curriculum syllabus design and to explore English teaching methods in the Chinese EFL context.

In this section the undergraduate students' English learning experience is described first to locate the participants in this research. Secondly, a new direction for tertiary English education in China is presented. In the following section, an overview of the research in tertiary level English writing in China is provided in order to find out the characteristics of studies in this field. The argumentative writing instruction in China is described last.

1.3.1 Undergraduate Students' English Learning Experience

The English learning experience of non-English major undergraduate students is described for two reasons. First, they are the participants in this study because I am interested in these students' English learning inquiry having worked as an English teaching assistant for undergraduate university students while a postgraduate student. Secondly, they are the largest group of students in the Chinese tertiary education sector.

Most of the participants started English courses between grade one and grade three (age 7 and age 10) in the primary stage. The curriculum content included English letters, phonetic symbols, basic vocabulary, grammar knowledge (word class, simple tenses,

simple sentences), and daily communicative language. They had four courses (160 minutes) each week taking the Communicative Language Teaching Approach (Ministry of Education of the People's Republic of China, 2001a).

In the following three years of middle school English education, students were provided with linguistic instruction, including vocabulary and grammar (word-building, complex tenses, voices, and sentences); and linguistic application instruction, such as English listening, English speaking, English reading, and English writing. In this stage, they took four courses (180 minutes) each week of explicit instruction (Ministry of Education of the People's Republic of China, 2008).

When entering senior high school, most students were confronted with the first challenge in their life - the College Entrance Examination. This large-scale high-stakes test focused intensively on grammatical knowledge, lexical knowledge, reading ability, and test-taking skills rather than writing, listening, and speaking abilities. The English course in this education sector was closely related to this examination. English courses (240-300 minutes) were provided per week by following the explicit instructions of the curriculum (Ministry of Education of the People's Republic of China, 2000).

Once studying at the university, all non-English major students were enrolled in the compulsory English course (College English Course), which aimed to improve students' five skills (listening, speaking, reading, writing, and translation) in first and second university years. These students were required to complete the College English Course of 10-12 credits (about 180-210 teaching hours) (Cai, 2017). In addition, a number of selective English courses, such as English culture, advanced English writing, and professional English literacy, were available in some universities.

1.3.2 A New Direction of Tertiary English Education in China

In the late 1970s, English teaching and learning developed rapidly in China after the policy of economic reformation and opening. The tertiary English educational environment has been shaped by this social policy because English education in China

has proceeded in a top-down guidance model at every educational level. Over the past four decades, English education at the tertiary level has gone through four stages.

First, during the restoration stage from 1979 to 1987, an influential English educational policy appeared in the College English Syllabi (CES) in 1986, which formulated the College English Tests (Band 4 and Band 6) across the country. Second, during the growth stage, from 1987 to 2004, these two tests led to a nation-wide enthusiasm for English teaching and learning in China (Xu & Fan, 2017), with students' university degree achievements were directly determined by their performance in CET 4 and CET 6. In addition, the results of CET 4/6 were also linked to other systems of assessment, such as a college teacher evaluation system, the Chinese university academic ranking system, and an employer recruitment system. Therefore, the CET 4/6 were, to a great extent, regarded as the impetus for English education during that period. It should be stressed here that CET 4/6 still belongs to the large-scale high-stakes test, in which linguistic knowledge and test-taking skills, especially the reading skills, were emphasised.

Thirdly, during this upsurge in English educational, the Ministry of Education promulgated the College English Curriculum Requirements (CECR) in 2007. This document underlined a shift from linguistic knowledge and test-taking skills instruction to comprehensive English ability instruction, especially the listening and speaking competences. In addition, this period saw an intense debate in English curriculum design at the tertiary level between EAP/ESP courses and general English courses. Cai (2014) argued that it was necessary to develop the ESP/EAP courses and enhance the English academic competence of university students. He (2007) claimed that the general English courses, especially the College English Course to some extent, were a repetition of the high school English course; that is, the primary goal of the College English Course has remained the fostering of learners' foundation English, which does not satisfy students' changing demands as well as the globalised economic requirements. The ultimate goal of ESP/EAP courses, however, was to enhance learners' English communicative ability

for both vocational and academic purposes, and it was more suitable for the contemporary era. In contrast, Hu and Xie (2014) argued that the college English learning should be part of humanistic development and cultural liberal education, whereas ESP teaching was utilitarian and could impede students' mastery of the language.

Recently, after a two-year national tertiary English education survey of 571 college English teachers and 1266 undergraduate students, the Guidelines on College English Teaching (GCET), distinguishable from the previous descriptions in the CECR, were published on May 2017. The teaching goal of college English in the GCET had an obvious change when compared with the CECR, published in 2007; that is, the CECR focused on learners' all-round English ability, especially listening and speaking competence while the new document GCET emphasised students' personal language application in English. Students' English application ability was defined as competence in using English in a specific genre, such as mail, report, and thesis; it addressed the combination of language competence and language application in English. Moreover, this document officially responded to the debate between general English courses and ESP/EAP courses; it proposed that general English courses and ESP/EAP courses needed to work together to formulate college students' English application competence. The purpose of the general English courses was to raise students' language use in daily social genres, such as table manners, living etiquette, and health care genre, whereas some other ESP/EAP courses worked to develop learners' language applications in widely academic and professional genres (Wang, 2017). The trend of English education at the tertiary level in China encourages college students to express themselves in English in different genres.

As discussed above, tertiary English policies changed markedly over the last 40 years. Consequently, college writing instruction also experienced modifications in terms the status of writing pedagogy and writing methods. Firstly, in traditional college English courses, writing instruction was a supplement to the reading instruction for a

long time (Zhang, 2008). After the reform of tertiary English education, ESP and EAP writing courses were established to develop learners' academic writing and professional writing ability (Zhang, Zhang, & Liu, 2011). It is widely acknowledged around the world that academic writing is at the heart of tertiary education, and that the acquisition of academic writing competence can contribute to promotion of students' critical thinking, academic achievement, and professional development. Therefore, English writing is playing an increasingly important role in tertiary English education in China.

Secondly, English writing approaches have markedly changed also during these 40 years in China. Specifically, they have undergone a revolution from a production approach (Yu & Zhang, 1996), a process approach (Deng, Liu, Chen, Chen, & Zhang, 2003; Hu, 2003), and a length approach (Wang, 2005) to a task-based approach (Liu, Wang, & Zhang, 2017), a genre approach (Huang & Li, 2012; Wu & Cui, 2016), and a production-oriented approach (Zhang, 2017). The most notable change among these teaching approaches is an increased interest in writing as communication. Communicative writing instruction, such as the genre approach and task-based approach, has been encouraged by many writing experts (Deng, Liu, Chen, Chen, & Zhang, 2003; Liu, Wang, & Zhang, 2017; Wu & Cui, 2016). Meanwhile, these suggestions meet the requirements, to some extent, of government policy and college students. The next subsection briefly reviews the literature on research on college English writing in China.

1.3.3 Characteristics of the Research on Tertiary Level English Writing in China

As this study examines English writing education at the tertiary level in China, it is necessary to provide an overview of studies in this field. Four characteristics of these studies are identified. Firstly, theoretical and empirical studies about English writing education at the tertiary level in China fall behind L2 writing research in western countries. English writing theory in western countries has been comprehensively explored including cognitive theory, instructional frameworks, and genre theories. In China, although the writing research showed rapid growth after the promulgation of the

CECR in 2007, the investigation of English writing theory is immature with empirical studies on English writing still at the development stage. Riazi and Haggertys' (2018) review of empirical research on writing from 1992 to 2016, in the *Journal of Second Language Writing*, regarded as the most important scholarly publication in the English writing field, noted that only 15 articles (5.5%) reported research based in China, compared with more than 50% of L2 writing studies based in the west.

Secondly, it shows a shortage of in-depth inquiry of students' English writing teaching and learning processes in China. Most researchers immediately associated students' development in college English writing with students' "writing production", such as the exploration of the changes in students' textual characteristics of language errors, coherence, choice of words, and building of sentences (Xu, 2015). It was believed that students' writing competency develops spontaneously once they have adequate language ability. A more persuasive argument, however, is that second language writing is a process for discovering meaning (Matsuda, 2003; Zamel, 1982). It requires thinking deeply about the relationship among students' planning activity, logical thinking ability, critical thinking ability, language knowledge, and writing development (Qin, 2009). The inquiry into Chinese EFL students' writing process, however, has barely begun.

Thirdly, how to promote a better study on English writing intervention in China is disputed. As discussed in the previous section, since neither CERE 2007 nor GCET 2017 explicitly recommended any rule or design for the foreign language writing and ESP/EAP writing curriculum, English writing courses were produced usually by the individual university, or language instruction faculty without common standards. Therefore, while research on English writing course design appeared widely in China, the quality was poor. Qin's (2009) investigation of 716 English research articles on writing concluded that while numerous studies have investigated writing courses (40%), most of these studies only introduced different writing approaches or summarised their personal teaching experience; there was little integration of writing theory and

investigation of practical teaching. Yang and Han (2012) similarly argued that, in China, the connection between fundamental theories on writing and writing teaching practice was an unexplored territory. For teachers, there was insufficient investment in theoretical model and practical resources in EFL writing teaching. It can, therefore, be argued that the current literature on students' writing processes and writing practices in English is still scarce, and that Chinese students' writing development in English remains under-researched.

1.3.4 Argumentative Writing in China

Although Chinese undergraduates do not need to complete academic English reports and theses in their university education, some basic communicative competence of written English, such as expression of opinions, topic analysis, and responding to issues is required because of increasing globalisation in tertiary education and the job market. English argumentative writing instruction may be a suitable channel to help Chinese undergraduate students develop their English writing competence at the tertiary level. In other words, when students entered the university, their written English ability is required to be extended beyond personal expression and information presentation; they are expected to critically analyse resources, argue for and against different perspectives, and create claims with effective data. These abilities are closely linked with argumentative writing, which assessed usually, by identifying an issue, considering alternative views, supporting a stand, and responding to contradicting perspectives. As Mitchell and Andrews (1994) pointed out, the English argumentative/persuasive writing is the basic skill for all university students.

A large-scale longitudinal survey of Chinese EFL students' critical ability, however, revealed their weak critical thinking and argumentative writing performance as shown in aspects such as insufficient formulation, lack of content evidence and audience awareness (Wen & Zhang, 2016). Several studies have explored the causes of Chinese students' poor performance in English argumentative writing. The first

explanation is that many Chinese EFL students compose English argumentative writing using their L1 knowledge about writing moves and writing content. In other words, their existing rhetoric knowledge of native language argumentative writing predisposes them to construct English argumentative writing with their acquired L1 knowledge (Liu & Li, 2017). Another explanation is that there is a lack of in-depth instructional exposure to English argumentative writing in China. Li (2012) argued, as English argumentative teaching is complex, we should take into account related things such as students' critical thinking and cognitive ability and not just consider the problems student writers had at the structural and language levels. Further exploration into English argumentative writing to understand Chinese EFL students' writing development at the tertiary level, therefore, is necessary.

1.4 Theoretical Preamble

Sociocultural Theory (ST) (Vygotsky & Cole, 1978) and the Genre Knowledge Model (Tardy, 2009) were used as the theoretical frameworks to guide the design and analysis of my research. Grounded in the sociocultural perspective, human development is regarded as the process of engagement in the centre of learning communities after participating in social interactions (Vygotsky & Cole, 1978). This theory enables an exploration of EFL writers' genre knowledge development and writing performance improvement in argumentation after genre-based writing instruction. The notions of Mediation, and Internalisation are applied in this study. Section 2.3.1 provides a detailed explanation of the essential characteristics of ST while introducing the application of these characteristics in the field of L2 writing.

In addition, the Genre Knowledge Model (GKM) was used as an analytical tool to guide the exploration of students' development of knowledge about argumentation in writing. Writing knowledge, as a complex definition, is defined as a holistic mechanism that takes into account the combined operation of knowledge at different levels in a specific genre (Tardy, 2009). This definition tries to capture the complex nature about

the changes in students' knowledge of argumentation in writing. Section 2.5.2.1 further explains the nature and content of GKM in L2 writing.

1.5 Definition of Key Terms

The definitions of some key terms used in this study are provided here to facilitate the understanding of this thesis. Seven important terms included in the thesis are: The genre-based writing approach; practice and task; argumentative writing; genre; genre knowledge; and writing performance.

Writing authorities in L1 and L2 contexts have suggested a genre-based approach to teach writing, which provides students with opportunities to establish a basic understanding of discourse features and genre awareness (Hyland, 2007); students are involved in series of genre-based practices, such as explicit textual analysis practices and implicit contextual awareness practices.

I use the terms "practice and task" interchangeably to refer to instructional activities in the writing classroom. Candlin's (1987) definition of *task* in Swales (1990) is adopted, that is a "task is one of a set of differentiated, sequenceable goal-oriented activities drawing upon a range of cognitive and communicative procedures related to the acquisition of pre-genre and genre skills appropriate to a foreseen or emerging socio-rhetorical situation" (Swales, 1990, p. 74).

Academic writing in higher education considers in two different aspects: Discipline-specific writing and widely available specific conventions related to academic communication in college contexts. If students do not follow these conventions, their meaning may be unclear to their audience, such as peers or teachers (Bailey, 2017). 'Argumentative writing' as a mode of academic writing has long been recognised as an essential part of L2 learners' academic experience at the tertiary level English education (Qin & Karabacak, 2010; Zhu, 2001). There is a great demand for writing an argument, depending on students' various fields of study at the university level. For example, students may be asked to support a decision, critically judge on an

international topic, evaluate a particular problem, or respond to a position (Coffin & Hewings, 2005). If undergraduate students are unfamiliar with the elements in argumentation, in the western rhetoric context, it will be difficult for them to express themselves clearly in the academic writing.

The term "genre" is defined as a staged, goal-oriented text and social action with a definite communicative purpose or purposes within a specific community (Hyland, 2004; Johns, 2015), and is currently "one of the most important and influential concepts in literacy education" (Hyland, 2008, p. 543). In Section 2.5.1, I discuss the notion of genre knowledge as defined and operated in different schools of thoughts.

The concept "genre knowledge" is defined as students' ability to recognise genre features in a specific context (Hyon, 2001), and to analyse the context and purpose of a text before making selections of written features (Yasuda, 2011). Tardy's (2009) Genre Knowledge Model is used to explore Chinese EFL students' knowledge about the elements in argumentation from three dimensions: Formal knowledge (their displayed knowledge about the structure of discourse moves in argumentation, language features specific to the argumentation, and content in the argumentation); rhetorical knowledge (the argumentative intended purposes and audience awareness); and process knowledge. Section 2.5.2 gives a detailed explanation of the characteristics of genre knowledge.

The umbrella term "writing performance" in my study encompasses students' performance in argumentative writing on different dimensions, including discourse moves (Nussbaum & Schraw, 2007; Toulmin, 2003), writing substance (Kuhn, 1991; Means & Voss, 1996; Stapleton & Wu, 2015), and an overall writing score (Glasswell, Parr, & Aikman, 2001; Jacobos et al., 1981).

1.6 Significance of the Study

Almost all EFL teachers complain about the difficulties of teaching Chinese EFL non-English major undergraduates in their writing courses. Their reasoning, usually, is that most students' English is of poor quality (Cai, 2017); this is a paradox in that students'

poor foundational knowledge in English reflects teachers' ineffectiveness and unsuccessful English teaching rather than the fault of the students. This logic, however, has prevailed for a long time until now, and saying that "students' poor quality in English" in response to any English teaching trouble has become an excuse. Nonetheless, these teachers who complain are responsible in that they have thought about their English teaching and decided to do something.

In this situation, EFL teachers and researchers put forward a solution, namely, to put EFL learners in the English environment. Important questions about this solution arise as to how the "English environment" can be established in an EFL context and what students gain from such an intervention. Some conceptions, theories, and strategies in the ESL context, naturally, will be applied when we construct the "English environment" in the EFL context. Take writing exploration as an example, many English writing researchers suggested applying ESL-based theories, models, and the findings in the EFL context (Huang, 2014; Yasuda, 2015). EFL learning and teaching, however, is different from ESL teaching and learning. As these generally accepted conceptions, theories, and strategies are proposed for use in the ESL context, researchers in the EFL contexts were asked to rethink and reassess these conceptions, theories, and strategies in relation to the different demographics of students. The exploration of EFL students' development, including their knowledge and writing performance is important. It is proposed that students' writing performance, as the aspect teachers are most likely to encounter, is only the tip of the iceberg. It is difficult to be explained without a deeper exploration of the changes in students' knowledge systems that inform their performance.

The purpose of this study is to contribute to a deeper understanding of the gap between the theoretical research suggestions and actual practices in the Chinese EFL writing context, to lead to more studies on examining EFL students' writing development with empirical studies. This study provides empirical evidence that may advance theories in L2 genre teaching, genre knowledge, and writing development

(Cumming, 2016; Hyland, 2003; Tardy, 2009). Meanwhile, it can deepen instructors' understanding of the effectiveness of genre-based instructional practices on EFL learners' writing development and, in turn, gives teachers some innovative ideas for classroom-based writing pedagogy. At the same time, it is hoped that college English policymakers will identify the importance of English academic writing in the tertiary education in China, and invest time and measures, persistently, to facilitate the development of English academic writing projects.

1.7 Research Questions

Thus, this research contributes to the existing theoretical and empirical literature on L2 writing, by conducting an empirical study to examine Chinese EFL students' writing development from genre knowledge and writing performance perspectives in a classroom context. It provides a comprehensive exploration of students' writing development during writing instruction in the classroom context.

Based on the analysis of the quantitative and qualitative data collected from writing tests, questionnaires, and interviews, this study aims to: 1) Investigate the changes in Chinese EFL undergraduate students' knowledge about different elements in argumentation during the genre-based writing approach; 2) Explore the changes in Chinese EFL undergraduate students' writing performance in argumentation during the genre-based writing approach; 3) Identify the development of students' knowledge of argumentation which may mediate their writing performance.

The following three key questions, specifically, are investigated and discussed in this research:

1. What effect does a genre-based approach have on students' knowledge about argumentative writing (argumentation)?

2. What effect does a genre-based approach have on the quality of students' argumentative writing (argumentation)?

3. What is the role of the development of Chinese EFL students' knowledge about the elements in argumentation in helping their writing?

1.8 Structure of the Thesis

This thesis contains eight chapters.

Chapter One provides an overview of the chapter and the rationale for this research. It describes the context of this research including Chinese undergraduates' English learning experience, tertiary English education and English writing instruction in China, tertiary level English writing research in China, and the requirement of argumentative writing education in China. The chapter then briefly provides an overview of this research regarding the theoretical underpinnings, introduces key terms used in the thesis, and states the significance as well as the research questions for this study.

Chapter Two first introduces Sociocultural Theory (ST) and the Genre Knowledge Model (GKM) as the theoretical frameworks in this research. It describes the characters of ST, establishing the rationale of the current study as an intervention research. It also explains the properties of GKM as a scheme intending to explore the complex nature of changes in students' knowledge. This chapter, next, critically reviews the literature on argumentative writing, genre, genre knowledge, and genre-based writing approach, with particular emphasis on complicated development of students' genre knowledge/writing performance and its potential affecting factors.

Chapter Three presents the methodology and research design. It explains the reasons for the use of a mixed-methods design. It also presents the design of the mixed-methods quasi-experimental study, including the place of the pilot study, the use of the genre-based writing approach and the conventional writing approach on experimental and comparison groups, the procedures adopted for data collection and data analysis, as well as the ethical considerations.

Chapters Four, Five, and Six present the findings of the research questions.

Finally, Chapter Eight concludes this study, pointing out its theoretical and practical contributions as well as limitations. It also offers recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter introduces the theoretical frameworks of this research and reviews the literature relevant to argumentative writing, genre, genre knowledge, and a genre-based writing approach. It starts with the introduction of an informative abstract by explaining what I will present in this chapter. It will then outline the theoretical frameworks that inform the present exploration, followed by a review of the nature of argument in the writing research. Next, I will critically review the research into the nature and characteristics of genre; the nature, the development, and some important ideas in genre knowledge; the genre-based approach in L2 writing context; and genre-based research in China. Finally, the summary section outlines the major findings and research gaps from the literature.

2.2 Introduction of an Informative Abstract

This introduction of an informative abstract serves to explain the function of the following subsections, especially how they relate to each other and how they work on my research foci. Section 2.3 introduces the nature and properties of Sociocultural Theory and a simple introduction of the Genre Knowledge Model to provide how these theoretical systems can be used to guide the research design and interpret the results for the current study. Section 2.4 presents the nature of argumentation with respect to its origin, definition, and models, to legitimatise the evaluative aspects of the writing performance in argumentation. Next, section 2.5 makes a thorough review of the literature in three sections. 2.5.1 describes the basic conceptions and characteristics of genre to lay the foundation of the following understanding about genre knowledge and genre teaching. Section 2.5.2 reviews the literature on genre knowledge, with a specific

emphasis on the component content, the developmental patterns and affecting factors. Section 2.5.3 critically reviews the literature on genre-based writing methods and the development of L2 students in their writing, and particularly stresses a post-method pedagogy in L2 genre teaching. Then, section 2.6 reviews empirical studies relevant to the genre teaching and genre knowledge exploration in China. The final section 2.7 summarises major findings and gaps of related studies and describes the aim of this study.

2.3 Theoretical Framework

The theoretical framework as the foundation of my research will be introduced first. As a famous social scientist, Kurt Lewin (1952) argued, a good theory is regarded as an effective guidance of the research. Sociocultural theory and the genre knowledge model had a profound influence in my research, guiding my exploration of genre teaching and the changes in L2 students' knowledge and performance in their writing.

2.3.1 Sociocultural Theory

Sociocultural Theory (SCT) also called social constructivism, which explores human learning and development, was founded by notable psychologist and educator Lev Vygotsky. From his perspective, human development is the dialectic process of being engaged in center of learning communities after participating in social interactions (Lantolf & Poehner, 2008; Vygotsky & Cole, 1978; Wenger, 1998; Winne & Hadwin, 2010). This definition advocates that people learn and develop through others' mediation. A typical example is that learners, with writing teachers' mediation of appropriate practices and activities, can develop their writing schemas and writing quality. A group of L2 English writing scholars (for example, Manchon, 2011; Paltridge, 2017; Tardy, 2003) supports Vygotsky's view of human development, and they also have confirmed the efficiency of social constructivist activities for writers' learning and improvement. A definition of SCT includes three characteristics, closely related to my

study, are presented here: They are Zone of Proximal Development, mediation, and internalisation.

1) Zone of Proximal Development (ZPD)

ZPD represents the distance between learners' current performance and their performance after mediation and support (Oxford, 2003). As Vygotsky and Cole (1978) defined, the ZPD is "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p. 86). This definition gives us the two principles of ZPD. Firstly, ZPD occurs when the interlocutors are in different stages and capability levels. For example, one person (e.g. writing teacher) must know how to write and the other (e.g. student) does not know. Secondly, ZPD divides human learning and development into two levels: actual and potential. The former one is described as a novice student's ability to perform a task without support, and the latter one is the stage that the novice student can achieve with the mediation. The application of Vygotsky's ZPD theory in teaching gives us the mechanism of scaffolding in the field of writing instruction: The writing teacher can design various practices to help students participate in the activities and help students to improve their knowledge from an actual level to a potential level in L2 writing (Cumming, 2001). The ZPD has a practical implication for teaching because writing teachers can scaffold the development of L1 and L2 students' writing learning to a higher level by providing appropriate assistance.

2) Mediation

Mediation, which is closely related to the ZPD can be described as multiple interactions between learners and more capable experts in Vygotsky's sociocultural theory. This definition captures the concept that the pedagogical practices act as a bridge between learners and knowledge and enable the development of learners. In the writing field, the mediation involves instructors' scaffolding writing activities in enhancing students'

understanding and mastering of writing knowledge in specific cultural contexts (Green, 2014). In this study, the genre-based writing intervention and the conventional writing instruction were two forms of mediation; therefore, it is important to trace the development of students' knowledge about different elements and writing performance through these writing instructions.

3) Internalisation:

In SCT, internalisation means learners' individual changes in their personal thinking and actions after the mediation. As Lantolf and Beckett (2009) argued, internalisation is not the direct application of what is instructed but a personal construction after the mediation. Therefore, students' individual writing learning could be considered as a kind of internalisation, which leads to the development of writing capacity through the complex interactions of personal background, social context, and individual cognition. Eventually, after internalisation, the writers will have their "own inner speech, which provides ongoing guidance" in the writing (Oxford et al., 2014, p. 32). This term implies that both internal factors (personal situation) and outside factors (mediation) may contribute to the learners' development. In this study, students' self-reflection ability and high/low writing proficiency (personal situation) and the genre-based writing practices and conventional writing practices (mediation) will be discussed along with the changes in learners' knowledge and writing performance.

ZPD, mediation, and internalisation in sociocultural theory provide an appropriate framework for this study to explain the progress of Chinese EFL undergraduates' knowledge and performance in argumentative writing after different writing instructions. The detailed analysis of the findings within this theoretical framework will be presented in the discussion section.

2.3.2 Genre Knowledge Model

Following, Tardy (2009), I use Genre Knowledge Model (GKM) to analyse participants' knowledge and knowledge development in their writing. From a psychological

viewpoint, writing can be created by dealing with several knowledge elements. The genre knowledge model applies findings from cognitive psychology, advocating that knowledge processing at the mental level is the major mechanism of their writing. This model proposes that there is a big gap between writing novices and writing experts, especially when students use their various knowledge elements into a necessarily linear linguistic product. Researchers have worked to identify the disparity between novice and expert writing to discover the most effective knowledge model to instruct novice writers (Flower & Hayes, 1981; Hayes, 2012). The nature and content about gene knowledge model will be described at length in section 2.5.2. after the review of characteristics of genre.

In summary, the sociocultural theory and genre knowledge model jointly are suitable guides for my study. The principles in sociocultural theory hold that the writing instruction can help students to cross the gap between the actual level and the potential developed level. The knowledge development and writing performance improvement may closely relate to writing pedagogy and internal factors. The various elements in the genre knowledge model schematised participants' knowledge in their writing.

2.4 Nature of Argument

Argumentation in the west has been strongly influenced by Aristotelian rhetoric studies in the field of modern academic or non-academic communication (Connor, 1996). To Aristotle, human communications involved three major components: the speaker, the audience, and the content of the argument. Early and contemporary teachers of English literacy in England and the United States traced writing pedagogy from this classic rhetorical root.

Argumentation is used as an umbrella term to describe persuasion with a series of components such as opinions, supporting facts, logic structural expression, and the counteractive actions with appropriate tone, voice, and language (Vesterman, 2000). Nadell, Langan, & McMeniman (1993) clearly define argumentative writing as the use

of "structural logic (logos) to convince readers of the soundness of a particular opinion on a controversial issue" (p. 571).

It is notable that the definitions of argumentation emphasise the structures and substance in the process of arguing. The following will introduce three commonly used structured argumentative models in the L2 writing field. They are Cicero's six-element argument model, Reid's four to six argumentative paragraphs, and Toulmin's six-stage argument model. For Cicero (106-43BC), an argument contained six elements: 1) Introduction, background, partition or statement of propositions, confirmation proof of propositions, refutation, and conclusion or appeal to sympathy (Nicholas & Nicholl, 1994). His argument model is worth considering as it is the oldest systemic argument, which emphasises, after Aristotle, the refutation from the opponent.

Reid's argumentative model explicitly concerns argumentative writing; it provides students various structural choices in their personal argumentative writing. As Reid (1988) suggested, argumentative essays have four to six paragraphs (Table 2.1), and some paragraphs are optional depending on students' needs and length of the writing. She further claimed that short argumentative writing usually had an introduction, background, and statement in the first paragraph. From these three plans in her model, it is apparent that the basic elements in argumentative writing are: Introduction, background, argument, counterargument, and conclusion. The rearrangement of each element varies according to students' writing aim.

Table 2.1 Three basic organisational plans in argumentative articles

	Plan A	Plan B	Plan C
1.	Introduction (thesis statement of intent)	Introduction (thesis statement of intent)	Introduction (thesis statement of intent)
2.	Background paragraph about topic (optional: depending on assignment, audience, and the available material)	Background paragraph about topic (optional: depending on assignment, audience, and the available material)	Background paragraph about topic (optional: depending on assignment, audience, and the available material)
3.	Pro argument 1 (weakest argument that supports the opinion)	Con (counterarguments and refutation)	Counterargument 1 + pro argument to refute it
4.	Pro argument 2 (stronger argument that supports the opinion)	Pro 1 argument (weakest argument that supports the opinion)	Counterargument 2 + pro argument to refute it
5.	Pro argument 3 (strongest argument that supports the opinion)	Pro 2 argument (stronger argument that supports the opinion)	Counterargument 3 + pro argument to refute it
6.	Con (counterarguments and refutation)	Pro 3argument (strongest argument that supports the opinion)	Solution to the problem (optional: depends on assignment, audience, and the available material)
7.	Solution to the problem (optional: depends on assignment, audience, and the available material)	Solution to the problem (optional: depends on assignment, audience, and the available material)	Conclusion (summary + solution, recommendation, or call to action)
8.	Conclusion (summary + solution, recommendation, or call to action)	Conclusion (summary + solution, recommendation, or call to action)	

Source: Reid (1988), p. 94

Toulmin's argument model, proposed by the British philosopher Toulmin (2003) has witnessed a shift of attention from a linear claim-and-warrant structural model to a cyclic claim-warrant-qualifier-backing-rebuttal model. In the early stage, Toulmin (2003) described the argument from three elements: claim, data, and warrant. Then, he continued to assert that some second-level elements: qualifier, backing, and rebuttal are also needed to reinforce the argument (Toulmin, 2003). Recently, more studies about argumentative writing instruction have tried to capture the cyclic elements underlying Toulmin's model, when teachers instructed or measured learners' argumentative writing (Bacha, 2010; Ferretti et al., 2000; Nussbaum & Kardash, 2005; Nussbaum, 2008; Nussbaum & Schraw, 2007). For a comprehensible understanding of the argumentative elements, some elements in the Toulmin model have been given different names. For example, a six-element model, including claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data is widely used in many studies, such as Crammond (1998), Nussbaum and Kardash (2005), Stapleton and Wu (2015), Qin and Karabacak (2010), and Ramage and Bean (1999). These six elements and their definitions are described in Table 2.2.

In the studies of argumentative writing pedagogy, the quality of students' argumentative writing was described, initially, as the use of different structural elements in their writing, which implies that greater use of various elements in the argumentative writing can be considered as high-quality argumentative writing. For example, Qin and Karabacak (2010) measured Chinese university students' (n=113) argumentative writing moves and argued for the predictable nature of the argumentative structural elements. Their findings showed that those who had more use of counterargument claim, counterargument data, rebuttal claim, and rebuttal data would be more likely to have a high overall writing quality in argumentative writing. Moreover, these six structural elements were not developed at the same time, and the acquisition of data (counterargument data and rebuttal data) was more difficult than the acquisition of claims (counterargument claim and rebuttal claim) for EFL students. Similarly,

Crammond (1998) made an attempt to assess L1 elementary students' writing performance by counting the numbers of various argumentative elements with Toulmin's model. She found that students' writing moves could predict their argumentative writing quality. In addition, high-quality texts contained high use of rebuttal and counterargument elements.

Table 2.2 Six element in argumentation

Elements	Definition
Claim	An assertion in response to a contentious topic or problem.
Data	Evidence to support a claim. It can take various forms such as facts, logical explanations, suppositions, statistics, anecdotes, research studies, expert opinions, definitions and analogies.
Counterargument claim	The possible opposing views that can challenge the validity of a writer's claim.
Counterargument data	Evidence similar to "Data" (above) to support a counterargument claim.
Rebuttal claim	Statements in which the writer responds to a counter argument.
Rebuttal data	Evidence to support a rebuttal claim which include the identification of possible weaknesses in the counterargument claim, data or assumptions, such as logical fallacies, insufficient support, invalid assumptions and immoral values

Source: Ramage and Bean, 1999

In addition, some other studies focused on the quality of students' argument substance in assessing their argumentative writing performance (Nussbaum & Schraw, 2007; Schwarz et al., 2003; Stapleton & Wu, 2015). The substance quality of argumentative writing was measured according to a set of assessment criteria regarding participants' reasoning demonstrated in their written texts. Some argued that students who had the ability to prove themselves with more readable reasons would be considered as showing

high quality substance in argumentative writing. For example, Nussbaum and Schraw (2007) examined the development of 84 L2 undergraduates' reasoning in argumentation in their writing. They argued that students' stronger rebuttal data and more balanced reasoning in argument and counterargument after the instruction could predict their high quality of writing ability in argumentation. Other criteria of the assessment about students' argument substance quality focused on the coding scheme of reasoning forms. For example, Means and Voss (1996), and Schwarz et al. (2003) sorted participants' reasoning into four categories: Vague, makes sense, consequential, and abstract. They similarly argued that the high-quality reasoning such as abstract reasons and consequential reasons were found to have strong influences on students' overall writing quality in argumentation.

It can be summarized that, if we try to evaluate students' writing performance in argumentation, it means that the number of structural elements and quality of reasons in supporting the claims can be considered as the judging criteria. That is, the Toulmin's (2003) model can be used to identify students' writing structure, and the coding schemes of reasoning forms as formulated by Means and Voss (1996), and Schwarz et al. (2003) can be used to assess students' writing substance. These measurements are helpful in identifying students' writing improvement in argumentative writing.

2.5 Genre, Genre Knowledge, and Genre Approach

This section provides an overview of research on genre in L2 writing, genre knowledge in L2 writing, and genre-based writing approaches in the L2 context to describe students' writing development. It focuses on not only theoretical explanations but also on empirical studies in various contexts.

2.5.1 Genre

Research on genre has prevailed over the last three decades from the 1980s in promoting L2 students' writing learning and teaching (Paltridge, 2014). Generally, there has been

a heated debate on the definition of genre, although some agreements have been achieved on the description of genre characteristics.

2.5.1.1 Definitions of Genre

Since the term genre emerged in the field of second language (L2) writing in the 1980s (Swales, 2011; Tarone et al., 1981), definitions of genre have been in dispute within different genre schools. Generally, the Australian Systemic Functional Linguistics (SFL) defines genre according to the type of text, while the New Rhetoric (NR) describes the genre as a type of social action. For English for Specific Purposes (ESP) studies, the definition of genre includes both textual forms and social situations (Hyon, 1996). Table 2.3 summarises and contrasts representative researchers, genre definitions, and target learners based on these three genre schools.

Table 2.3 Genre in three-school

	Representative Researchers	Genre Definitions	Target Learners
SFL	Martin; Rothery; Hammond	Genre is described as staged, goal-oriented social processes in terms of micro-genres, such as procedures, descriptions, and recounts, which combine with each other to form the larger texts, such as research reports. (Martin & Rose, 2008)	ESL and EFL primary, secondary, and adult
ESP	Swales; Bhatia; Flowerdew; Gosden; Dudley-Evans; Thompson	"Genre refers to a class of communicative events, such as academic essays, research articles, theses and dissertation." (Paltridge, 2014)	ESL and EFL academic purposes students
New Rhetoric	Miller; Freedman; Medway; Bazerman; Devitt; Coe	Genre is a form of social action that is "centered not on the substance or the form of the discourse but on the action, it is used to accomplish" (Miller, 1984, p.151)	L1 and ESL university students and novice professionals

Although definitions of genre have been in dispute by scholars in different genre schools, it can be argued that genre is a staged, goal-oriented text and social action with a definite communicative purpose or purposes within a specific community (Hyland, 2004; Johns, 2015), and it is currently "one of the most important and influential concepts in literacy education", including second or foreign language education (Hyland, 2008, p. 543).

2.5.1.2 Characteristics of Genre

To understand better the nature of genre, it is crucial to consider different dimensions of the genre and make a distinction among these dimensions of their characteristics: discourses community and intertextuality.

Genre in a Discourse Community

In the discourse community dimension, the genre view is that a group of participants shares common communicative goals and interests through specific channels and fora (Porter, 1986; Swales, 1990; Tardy, 2009). A concern of studies focusing on this dimension is to find the typical patterns of a group's regular habits in conducting writing communication. Their shared interests can be grouped into three aspects: symbolic capital, psychological cognition, and social understanding respectively. The following paragraph addresses these three aspects respectively to provide a deeper understanding of the genre.

Symbolic resources are emphasized frequently by researchers in SFL and ESP schools, such as lexico-grammatical symbols and structural symbols in a genre (Cheng, 2011; Gentil, 2011). Here, the focus is on capturing typical patterns of experts' tendencies of using symbolic resources in the genre. Their hypothesis is that these configurations already exist in the discourse community, and L2 learners are required to understand and use them in their writing. However, it is commonly regarded as a dilemma for non-native English speakers as it is not a simple process of imitation of surface features but a complex individual mental action of reorganisation. The next focus of the discourse community is learners' psychological cognitive ability. Genre scholars claim that members of a community discourse may have similar cognitive abilities, including similar inquiry ability, mental activity, and understanding ability (Tardy, 2009). In an inquiry of how novice learners acquire these abilities, most genre researchers believe that it may be helpful to put participants into a forum to realise these goals. This is a sociological influence, the other focuses on the discourse community. A group of researchers, including Hafner (2014) and Cotos, Huffman, and Link (2017) argue that members of each forum share an understanding of this invisible forum, and the novice students' situation, moving from the periphery to the central condition is the process of developing linguistic symbols and cognitive ability in the sociological community.

In summary, if we treat genre as an important mediator in L2 writing teaching and learning, the emergence of students' writing development at a specific situation appears to be dependent on the combination of symbolic resources, psychological cognition, and sociological understandings after series of genre-based activities. From this perspective, we may: 1) Design genre-based writing practices and tasks to cultivate learners' symbolic resources and psychological cognition within a quasi-social situation; 2) try to understand the development of writers in their use of symbolic resources and psychological cognition in the particular social situation of the genre.

Genre in an Intertextuality

Another important characteristic in the genre is "intertextuality", which is emphasised by genre in different schools. Overall, intertextuality is operated in two levels from static and dynamic ways. From one point, in the ESP school, intertextuality refers to that genre existing within systems of interrelated genres and links to subsequent genres in a network of communication (Tardy, 2009). The thesis genre, for example, is connected to a range of other genres, such as the proposal, the ethics application, and the literature review. In the SFL school, Toledo (2005) made a similar understanding that "there are no clear-cut barriers between genre typologies; rather, they form a continuum" (p. 1065). The macrogenre, a larger and more complex term, consists of more basic elemental genres (Hyland, 2004). For example, a macrogenre- "thesis" might be composed of several element genres such as the explanation, the argumentation, and the description. Therefore, the genres are always linked to each other in a chain of communication.

From another point, intertextuality points out students' changing knowledge and attitudes about similar situations in a specific domain from different moments (Tardy, 2009). For example, writers' previous knowledge in argumentation about explicit textual or implicit epistemological elements is connected to their new considerations in argumentation after such activities. In this way, the genre is considered from a personal level, which is inherited due to enduring traits. It is emphasised that the textual features

and students' social psychological traits underlying genre should be considered within different timescales.

Intertextuality, in both of these ways, sheds light on the exploration of genre teaching and genre learning. In the genre approach, writing teachers could help students construct texts in interrelated genres. They could also blend practice, activity, discourse, and task to form an intertext for students (Tardy, 2009). Through the use of interrelated texts and practices in the genre approach, intertextuality, accordingly, brings meaning to students when they attempt to develop genre knowledge over time. That is, students may draw on previous textual conventions, they may look to interconnect genres, or they may deal with conventions and new knowledge they have experienced. Therefore, intertextuality becomes a crucial term in genre-based pedagogy for teachers and students in learning different genres.

2.5.2 Genre Knowledge

The definition and content of genre knowledge, similar to other terms such as genre awareness, genre cognition, generic competence, and generic metacognition, vary depending on the specific perspective of scholars and researchers. To understand the nature of genre knowledge, it is important to consider different levels from horizontal and vertical directions. For one hand, genre knowledge is viewed as a complex concept, which includes particular text forms as used in the particular discourse community (Swales, 1990), the values and ideologies inherent in a discourse (Berkenkotter & Huckin,1993), and genre rules in fulfilling professional and disciplinary purposes (Bhatia, 1999). In other words, students' genre knowledge can be measured from different elements (Bruce, 2013; Cheng, 2005, 2007, 2008; Gentil, 2011; Tardy, 2009). For another hand, genre knowledge is explored from two levels: current state and situation-specific development. At the current state level, genre knowledge is described as a stable situation. One of the foci of these studies is to try to find a group of students' typical and regular knowledge patterns in initiating written communication in a

particular genre. From the situation-specific development direction, students' genre knowledge is tracked over time within specific circumstances, such as classroom instruction or project events. Here, the focus is on capturing the changing tendencies in students' genre knowledge about different elements after specific intervention. Both contextual factors and personal psychological factors are exerted in learners' genre knowledge development.

2.5.2.1 Current Understanding of Genre Knowledge

Genre knowledge is defined as students' conceptual knowledge such as the ability to recognise features in a specific genre (Hyon, 2001), and to analyse the context and purpose of the genre before making selections in their writing (Cheng, 2007; Johns, 2015; Negretti & Kuteeva, 2011; Yasuda, 2011). Tardy (2009) developed a genre knowledge model to identify the patterns of learners' knowledge in specific genres during the writing construction. In this model, four elements of genre knowledge, namely formal knowledge, rhetorical knowledge, process knowledge, and subject-matter knowledge are presented (see Figure 2.1).
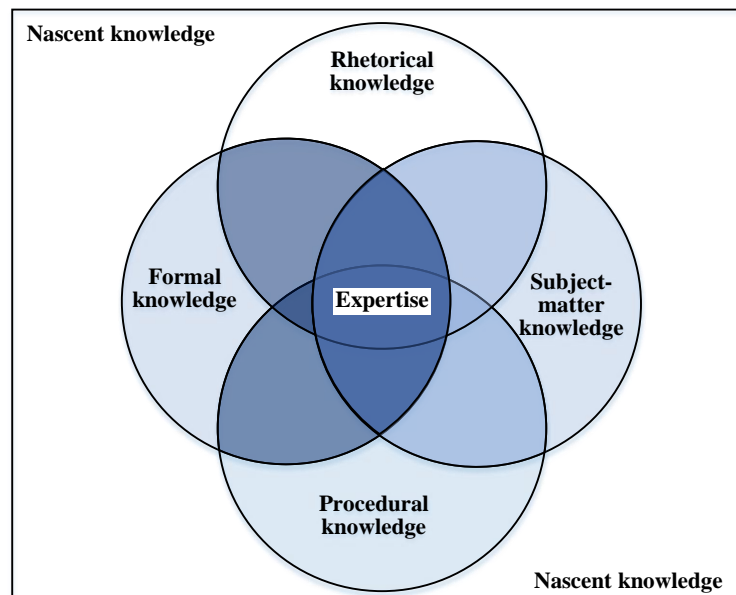
Figure 2.1 Genre knowledge model (Source: Tardy, 2009)

She suggested that these four elements were distinct and interacted with each other. Formal knowledge addresses students' understanding of textual features in a specific genre, such as conventional structural steps, lexico-grammatical tradition, and textual forma. Rhetorical knowledge refers to the understanding of a genre's conscious purpose in a local context, a sophisticated awareness of audiences' beliefs, and the awareness of situated variables in different social contexts. Process knowledge refers to all the composing processes in achieving the planned rhetorical action of a writing task. Subject-matter knowledge pursues the content in a domain, such as background knowledge and content of the subject matters in completing a writing task.

Her study further reported that novice L2 writers' different dimensions of genre knowledge showed limited overlap. She coded the comments from participants' interviews based on their writing, and claimed that ESL graduate students had not established the relationship between formal knowledge and rhetoric knowledge; that is, novice writers described their discourse moves, writing substance, and language use in their genre writing without any consideration of the specific context and purpose of the genre. Later, the case of genre knowledge exploration in an EFL context was taken into account. For example, Yasuda (2011) examined Japanese EFL participants' conceptualisation of knowledge in the email genre. She reported that EFL undergraduates' formal knowledge (lexis, grammar, sentence) in email writing did not appear to have any implicit rhetoric awareness; that is, the majority of students' comments were about the accuracy in grammar and lexical spelling.

Some studies also argue that novice student writers had better formal knowledge than other elements in their genre knowledge. For example, Gillespie et al.'s (2013) study of novice writers' knowledge about the persuasion genre, through a writing test and interviews, found that, while most students gave only vague descriptions in persuasion writing (e.g., idea generation and organisation of separate aspects), they appeared relatively familiar with structural elements. For example, when describing the persuasive genre, they talked about the main character, as "taking a stand and supporting

the stand" (p. 584). However, these descriptions of formal knowledge were not deep, and rarely provided the essential examples of a specific persuasive aim. The presentation of knowledge about other elements in persuasion was absent from these novice student writers' descriptions. In another study, Zhang (2013), investigating EFL Chinese students' formal knowledge, process knowledge, and rhetoric knowledge, reported that Chinese undergraduate students demonstrated good formal knowledge but limited knowledge in the process and implicit rhetoric levels in the genre of business letter, lending support to the findings in Gillespie et al. (2013).

Based on the popular hypothesis that knowledge played a key role in students' writing performance (Graham, 2012), some researchers tried to establish the correlation between students' genre knowledge and their written quality. Uzun (2017) tested 30 students' written texts to find out if students' genre knowledge was related to their writing performance in terms of content, organization, vocabulary, and language use in the literature review writing. He found that students' genre knowledge closely and strongly correlated to their overall writing quality. It appeared there was a parallel between the demonstration of genre knowledge (the discourse moves and rhetoric awareness) and the overall writing scores. Similarly, Lu (2010) concluded that students' genre knowledge predicted their overall writing performance. He also claimed that students' writing proficiency level may also play a role in their writing performance. From his perspective, both genre knowledge and students' writing proficiency should be taken into account as variables in affecting students' writing performance.

When investigating its antecedents and consequences they found that novice students' state of genre knowledge was conceptualised in relation to their previous L2 teaching experience. Some have argued that prior English teaching experiences might constrain students' conceptualisation of genre knowledge. For example, Wang (2017), interviewed eight EFL graduate students about their genre knowledge and previous experience, and posited that learners' high dependence of language knowledge when they construct their writing was derived from previous English course. She added that

too much emphasis has been put on the lexical and grammar knowledge enlargement in prior English instruction, while the deepening of language knowledge with the rhetorical awareness is comparatively neglected. Huang (2014) explored one EFL graduate student's genre knowledge of the genre about paper publishing and argued that participant's previous experiences in the English instruction, which only emphasised the grammar knowledge, restricted his rhetorical awareness in a new community. Huang concluded that novice EFL students need to acquire new multi-faced genre knowledge for their tertiary level writing instruction. These studies all used case study to measure students' genre knowledge patterns, and the relationship with their previous English teaching experience.

In summary, if we assume that the patterns of genre knowledge exist, it means that a group of students' conceptualisation of genre knowledge can be summarised. This genre knowledge construct is helpful in identifying students' patterns about different elements and establishing the potential relationship with students' writing performance. Together may work as an analytic lens to investigate students' genre writing.

2.5.2.2 Genre Knowledge Development in Specific Situations

Genre Knowledge Development

Introducing a time factor into the knowledge system, Bereiter and Scardamalia (1987) made a primitive attempt to define the development of writers' knowledge from two extremes. In this model, novice students adopt a knowledge-telling mode to compose their writing; that is, they use only readily accessible knowledge and skills to compose their writing in a simple way. Experts, however, use a knowledge-transforming mode, going beyond telling knowledge to transform and retrieve their ideas on various levels. In other words, experts are better problem solvers of their own writing and appeared to work on processing knowledge instead of using existing knowledge (Bereiter & Scardamalia, 1993). In this definition, students' knowledge resources and writing construction should be considered from different timescales. In addition, this model

suggests that writing experts can deal with knowledge in complex ways, while novice writers may lack this ability. This model is defined as a description of two extremes - knowledge-telling and knowledge-transforming; the developmental process between these two extremes continues to be explored.

Later, a three-step genre knowledge development model was established (Geisler, 1994). In this model, students' sensitivity to the specific context was postulated to sever in fostering students' knowledge development. In the first stage, it is less evident in students' conceptualisation about genre. In the next stage, while writers began to acquire abstract rhetoric awareness, representation of the rhetoric knowledge in the content domain was vague. In the last stage, rhetoric knowledge connected naturally with the specific content area; that is, writers saw texts as having authors, propositions, and timeliness. Geisler's analysis was especially noteworthy as it gave rhetorical intent an important position in the genre knowledge development for a long time. This model laid a solid foundation for many empirical studies exploring genre knowledge development in various situational contexts, in that it focused on the improvement of students' rhetorical awareness in L2 writing. Some researchers suggested that students' development in acquiring and using rhetorical elements correlate positively with other elements in their development of genre knowledge (Beaufort, 1999; Ellis, Johnson, Henry, & Roseberry, 1998; Huang, 2014; Negretti, 2015; Yasuda, 2011). For example, Ellis et al. (1998) asserted that a growing awareness of rhetorical knowledge could help EFL learners improve their knowledge of writing organisation. Likewise, Huang (2014) and Beaufort (1999) argued that increasing rhetorical knowledge led to writers' deeper understanding of formal and process knowledge in similar genres. Yasuda (2011) and Negretti (2015) reported that students' high-level of rhetorical knowledge contributed to their increased knowledge of content organisation. Negretti (2015) similarly reported that two participants in her study, who lacked the rhetorical knowledge, were constrained to general ideas in writing organisation and in their language usage.

Tardy's (2009) influential research explored the complex nature of the changes in L2 learners' genre knowledge in a specific context. Based on a longitudinal study with data collected from interviews, written texts, classroom observations over ten months, the researcher traced the development of four L2 students' genre knowledge in their presentation slides writing, lab reports writing, and thesis writing. This study made a great contribution to the exploration of L2 genre knowledge research by proposing a new description of development about students' genre knowledge. That is, genre knowledge development is a complex process, in which students' multiple knowledge elements, such as formal knowledge, rhetorical knowledge, process knowledge, and subject knowledge interact during this process. In contrast to previous studies, this knowledge development model schematises categories of students' genre knowledge, which gives researchers a tool to trace developmental progress from two perspectives: The development of each element; and 2) the interactions among different elements. This model also highlights that some elements of genre knowledge, at a specific moment, develop faster than other elements and that a combination of different elements are detected as leading to some improvements.

The exploration of change in formal knowledge was first emphasised in this model. Researchers in both ESL and EFL contexts drew similar conclusions using either quantitative or qualitative research methods and reported that L2 writers improved fast in their formal knowledge after the genre-based writing approach (Cheng, 2008; Devitt, 2015; Negretti & Kuteeva, 2011; Wette, 2017). For example, Wette (2017) used mind mapping to assess the development of international graduate students' genre knowledge before and after the genre-based writing intervention. She reported obvious gains in formal knowledge of a specific genre, such as structural and conventional language about essential patterns in the genre of literature review. She also claimed that students' reflections on monitoring and managing their own writing increased through using the genre-based mind-mapping practices, which led to the improvement of formal knowledge after the writing course. Negretti and Kuteeva (2011) and Devitt (2015)

report a similar finding of participants' changes in structural and language knowledge. Cheng (2008) claimed that students' on-going attempts to adapt themselves to the situational context under the influence of a specific genre-based intervention contributed to the positive changes in their structural and language knowledge. Other researchers have reported that the development of content knowledge at the formal level was less rapid than the structural element (Wette, 2017). Kutteva and Negretti (2016) further claimed, hypothetically, that content knowledge which is located at a deep level cannot be easily activated, although there was little evidence of this in his research.

It has been a common idea that the development of process knowledge changed slowly in a classroom writing context, and that its development is always strongly associated with other elements (Beaufort, 1999; Benesch, 1993, 1995; Casanave, 2005; Jwa, 2015; Wette, 2017). For example, Benesch (1993, 1995) reported that, in his study, process knowledge was the most neglected area in the General English writing course, and that students' process knowledge remained unchanged after writing practices. He also suggested that students' process knowledge may not develop without a deep understanding of sociocultural contexts. Huang (2014), in tracing one EFL graduate students' process knowledge development in the context of a writing project, found that the genre-based writing course enabled the participant to develop their process knowledge from the individual perspective to the perspective of social activity. However, the specific evidence in the development about process knowledge was rarely provided, and the improvement of process element was inevitably linked to other knowledge elements in the EFL context. Beaufort (1999), Casanave (2005), and Jwa (2015) explored students' process knowledge developmental path and argued that development of process element was always strongly associated with rhetorical awareness and personal subjective awareness (Beaufort, 1999; Casanave, 2005; Jwa, 2015). Jwa (2015), for example, found that students' process knowledge development is derivative in most cases, and is highly coordinated with their rhetorical knowledge. That is, participants' reformulation of their process knowledge in the genre practice is

depended on disciplinary discourse members' purpose and utilisation of the genre. Beaufort (1999) and Casanave (2005) both argued that participants' process knowledge development is closely related to students' individual subjective factors such as their own desires and prior practices; that is, students' personal orientation in the writing task is strongly tied up with their procedures in completing a writing task.

The rhetorical knowledge development has been acknowledged as a difficulty for ESL and EFL students in the L2 writing context (Wei, Zhang, Zhang, 2020). The development of learners' rhetorical knowledge is more difficult than the development of other elements, such as formal knowledge, process knowledge, and subject knowledge. For example, Wette (2017) reported that ESL learners' rhetorical knowledge of the book review genre was not developed as well as their structural and linguistic knowledge. Using a case study in an EFL context, Huang (2014) traced a graduate's change in genre knowledge during a genre-based writing course. She reported that "while A-Ming gained formal and process knowledge, it remained difficult for him to exploit rhetorical devices to advertise his study" (p. 185). Furthermore, Huang hypothesised that limited English proficiency was one of the main obstacles to students' development of their rhetorical knowledge. While a methodological implication of this study was that while a participant's development could be recorded comprehensively with repetitive interviews and examination of writing drafts during the writing intervention process, with only one case the representativeness of this research is extremely limited. Uzun (2016) reported findings differed from those of Huang (2014) and Wette (2017). He found that 28 English major EFL students' rhetorical awareness about argumentation developed significantly after genre-based writing instruction in Turkey. The generalisation of this research is limited as participants were English major students.

As well as investigating each element of genre knowledge, some researchers have examined the development of the interactions among different knowledge elements. Most investigations have concentrated on formal knowledge and rhetorical knowledge,

with evidence that the development of rhetorical knowledge had a positive correlation with other elements. Ellis et al. (1998) asserted that a heightened awareness of rhetorical knowledge could help EFL learners with improvement of their writing organisation with essential descriptions of a specific genre. Likewise, Huang (2014) and Beaufort (1999) argued that the development of rhetorical knowledge in similar genres led to the knowledge growth in both formal and process levels.

The development of formal knowledge, by contrast, was considered to have both positive and negative connections with other knowledge elements. Tardy (2005) and Huang (2014) asserted that novice ESL/EFL writers can attend to subtle and deep rhetorical knowledge use only after they have acquired generic formal knowledge. A less optimistic picture emerges from Lingard and Habers' (2002) study, in which they argued that writers' excessive focusing on formal knowledge may lead to ignoring rhetorical knowledge, and that explicit instruction may accelerate this phenomenon.

In summary, genre knowledge development can be measured by observing changes in different elements, such as written structure, linguistics, subject content, rhetorical awareness, and situational process. From this perspective, there is a need to: 1) Investigate a group of students' genre knowledge development that occurs in each element between different time points; 2) examine students' genre knowledge development about interactions among different elements between different time points.

Factors Affecting Genre Knowledge Development

As mentioned in the last section, many studies have reported the complex development of genre knowledge in various elements with some also exploring the underlying reasons for the development. In these studies, contextual and psychological factors were mainly investigated. The contextual direction, or the environment dimension, concerns factors external to writers that occur within the context of the writing intervention, such as textual modeling, classroom environment, and analysis of genre exemplars. The psychological factors, referred to as the personal factors, include such affective

attributes, such as self-reflection and metacognition. Table 2.4 below presents these two influences identified in the literature.

Table 2.4 Factors influencing students' genre knowledge development

Contextual Factors	Textual Modeling	Cheng, 1008
		Devitt, 2015
		Ellis et al., 1998
		Kuteeva & Negretti, 2011; 2016
		Kolb, 2017
		Yasuda, 2011
	Classroom Environment	Benesch, 1993; 1995
		Hansen, 2000
		Huang, 2014
		Jwa, 2015
		Wang, 2017
	Genre awareness practices	Wette, 2017
		Yasuda, 2011
		Yasuda, 2015
Psychological Factors	Self-reflection	Hansen, 2000
		Wang, 2017
		Wette, 2017
	Metacognition	Beaufort, 1999
		Casanava, 2005
		Johns, 2008
		Kolb, 2014

From the contextual perspective, some empirical studies have explored the positive effects of textual modeling on the development of students' genre knowledge. Kuteeva and Negretti (2016) tracked five graduate students' development of knowledge about research proposals during genre-based practices of textual modeling in a Swedish university. They found that the teacher-guide textual analysis helped students conceptualise their formal and rhetorical knowledge in their discipline writing. They

also reported that students' L2 proficiency may affect their genre knowledge development but there appeared to be no detailed investigation with only a hypothesis. Furthermore, there were only five participants in this research and therefore the representation of the study is extremely limited. In a large scale (n=70) study of first-year university EFL students in Japan, Yasuda (2011) examined the influence of the SFL genre-based textual modeling on novice students' knowledge development of the email genre. She claimed that learners' knowledge of email genre improved after the writing intervention, including teacher-guided practice of textual modeling; for example, students' knowledge of linguistic choice was more appropriate, and students' rhetorical awareness focused on the purpose and audience of the email genre. Yasuda described the teacher-led textual modeling process which 1) emphasised form-function model analysis; 2) encouraged writers to demonstrate their model analysis ability in various contexts, and 3) helped writers use personal modeling in their actual writing.

The two studies above do not have a comparison group to establish the effectiveness of textual modeling. A third study included a comparison group to examine the effects of textual modeling in a first-year tertiary-level management writing course in Brunei (Ellis, Johnson, Henry & Roseberry, 1998). The experimental group students, who received six hours of textual modeling intervention, demonstrate greater structural knowledge, while there was no increase in the comparison group. This study, similarly, has caveats on its reported results as only students' textual knowledge was measured and the instruction time was only six hours. Although the findings of these three studies are consistent in that the textual modeling seemed to contribute to the development of learners' genre knowledge, their reliability is tenuous. The only certainty from these studies was that the textual modeling is an important instructional resource in helping L2 students imitate the expressions and structure of a specific genre.

Other studies have explored the constraints of classroom environments on students' genre knowledge development, particularly those associated with inadequate writing curricula in ESL and EFL contexts. Wang (2017) discovered that many EFL students

had difficulty in using genre knowledge for thesis writing in their own major after a writing course on the topic. Most of them regarded the thesis writing task in the writing course as only for the course paper, which was not the intention of the task designer. Wang argued that a lack of an authentic writing environment may account for the challenges of students' genre knowledge development of a certain element. Hansen (2000) investigated the reason for difficulties in genre knowledge development in advanced writing courses in a case study with one ESL graduate student. He suggested that the lack of awareness of the audience, writing purpose, and content knowledge in the new community was due to poor coordination between the different writing courses.

In addition, some studies have explored the positive effects of teacher-guided genre awareness/knowledge analysis of exemplars on the development of students' genre knowledge. For example, Wette (2017) assessed the influence of a teacher-led intervention on 47 L2 students' knowledge about two genres, literature reviews and book reviews. She described the implementation of teacher-guided genre awareness/knowledge analysis of exemplars; which was, 1) Analyse the formal features, particular procedures, and rhetorical aims of exemplars using teacher-guided questions, and 2) give students' opportunities to use "evaluative language and display disciplinary knowledge" (p. 61). She claimed that this instructional practice was effective for these undergraduates; participants' gains appeared primarily in the formal knowledge, such as structure and language patterns, with the least change in process knowledge and rhetorical knowledge. Yasuda (2015) reported a similar conclusion with a genre awareness-based intervention of 30 EFL undergraduate students in Japan. Her examination of the use of teacher-guided exemplars of textual features and rhetorical awareness correlated with changes in students' rhetorical awareness and language knowledge in the scientific genre after the intervention. Both these studies reported that the teacher-guided genre awareness/knowledge analysis of exemplars seemed to contribute to the development of learners' genre knowledge. However, the results of these studies are limited by their design and lack of comparative comparison group.

From the psychological perspective, a number of powerful knowledge theories support the close relationship between knowledge development, self-reflection, and metacognition. It is generally accepted that knowledge is organised in long-term memory and working memory in a non-linear fashion (Breetvelt, van den Bergh & Rijlaarsdam, 1994; Buzan & Buzan, 2006; Hayes & Flower, 1983; Hyerle & Alper, 2011). From a constructivist perspective, the knowledge developmental process is considered as one of developing sophisticated schema, in which new knowledge is gradually integrated with prior knowledge (Becker, 2006; Chenoweth & Hayes, 2001, 2003; Galbraith, 2009; Kolb, 2014). A prevailing view among writing experts is that there is a close association between knowledge development, self-reflection, and metacognition (Gentil, 2011; Tardy, 2009; Zhang, 2014).

Studies of the effects of L2 students' self-reflection and metacognition on their development of knowledge in specific genres are limited in number and mainly concerned with how skills of self-reflection and metacognition skills are used in developing genre knowledge (e.g., Hyon, 2001; Johns, 2008). Empirical studies (e.g., Hansen, 2000; Wang, 2017; Wette, 2017) have suggested that the management of prior knowledge plays an important role in knowledge development; that is, students' existing knowledge and new knowledge activation are the focus when investigating the development of students' knowledge in specific genres. For example, Wette (2017) posited that newly learned genre knowledge needs to be integrated with their existing knowledge in raising students' awareness of what they already know, or need to know. The contribution of these studies is that they establish patterns of individuals' inner world in tracing genre knowledge development.

Based on the literature reviewed on the factors determining the reasons for learners' development of knowledge in specific genres, it concluded that both contextual and psychological factors contribute to learners' change. From this perspective, we need to: 1) Explore genre knowledge development with designed activities, and 2) investigate the underlying psychological factors in the change process.

2.5.2.3 Summary of Nature of Genre Knowledge

Based on the literature reviewed in this section, it is concluded that: 1) Genre knowledge can be considered as a comprehensive concept, in which a group of students' genre knowledge can be measured together with multiple elements; 2) for a deep understanding of the nature of genre knowledge, we should monitor a group of writers' genre knowledge development in various timescales and specific situations. There is a need to observe the typical patterns, and changes in those patterns of students' genre knowledge in particular contexts such as the writing practices in the EFL Chinese writing teaching context. The genre knowledge development about different elements, and relationships between these elements that occur within a group of students, also need to be examined to understand multiple factors influence genre knowledge in specific situations.

2.5.3 Genre-Based Writing Approach in L2 Context

Hyland's (2004) definition of genre is widely accepted in the genre-based writing instruction, that is, the genre is a staged, goal-oriented text with definite communicative purposes in a specific community. A genre-based writing approach aims to help students establish a basic understanding of discourse features through an explicit and accessible pedagogy (Hyland, 2007). As argued in section 2.5.1, three main schools in the genre (SFL, ESP, NR) have developed, each with a different teaching focuses and with targeted learners. Both ESP and SFL genre-based approaches have dominated L2 writing instructional field as they allow the explicit teaching of formal schematic features, moreover, explicit writing tasks are encouraged to be used to build students' genre knowledge (Hyland, 2007). The content of genre-based approaches (SFL, ESP) and students' development within these two approaches will be reviewed next.

2.5.3.1 SFL Approach, ESP Approach, and New Trend of Genre-based Writing Approach

The underlying assumption of the SFL approach is that students' higher-level language performance in their writing, which emerges with increasing use of lexicogrammatical features (e.g., grammatical metaphor), can be regarded as successful writing performance (Yasuda, 2012). The SFL genre-based writing approach advocates that students' increased experience of the language in the genre will lead to their greater writing competence. For example, an established writing principle in the SFL perspective, "teaching and learning cycle", proposes that explicit lexico-grammatical resourced teaching assists students learn to write in unfamiliar genres (Feez & Joyce, 1998, p. 28). In focusing on a target genre there are three stages of the teaching and learning cycle: 1) Context building and modeling; 2) joint text-construction and; 3) independent construction of the text. In the first stage, the genre is introduced through analysis of a model emphasising the texts' lexico-grammatical features and macro features. In the following stage, the teacher and students jointly construct a text identifying macro- and micro- features. Finally, students construct their own texts in this genre, conferencing with peers and teachers for feedback after they have completed a draft (Feez & Joyce, 1998).

The SFL genre approach contributes to improving L2 students' writing in two important ways. First, it provides non-native writers with opportunities to understand how certain text features of the target genre are organised (Cope & Kalantzis, 1993). In this situation, the teaching cycle facilities students, who are non-native speakers with language barriers, use of the genre language in a supportive context, before they are involved in using the genre in the field (Hyland, 2003). Second, the SFL genre approach facilities writers' frequent communication with teachers and peers providing them with opportunities to process, understand, and respond to someone in the community. Martin and Rose (2008) argue that SFL genre-based practices provide ESL and EFL writers with many opportunities to be involved in unfamiliar genres. The SFL genre approach

has been questioned, however, mainly from two aspects. Firstly, the scaffolding teaching cycle constrains students' innovative ideas being included in their writing. Secondly, it focuses intensively on specific language features, and does not develop the writer's competence in a systematic way since "writing is inherently multi-faceted, involving multiple issues" (Cumming, 2016, p. 65).

In contrast to the SFL's focus of language teaching, the ESP genre approach has twofold text- and meaning-oriented teaching goals to help L2 students participate effectively in their target context (Hyland, 2004). Furthermore, unlike the SFL school's dominant use of explicit teaching activities, the ESP oriented explicit teaching focuses mainly on an analysis of genre features to describe the genre for specific purposes (Cheng, 2011). Although in ESP genre-based writing classrooms learners are generally asked to analyse genre model texts, students' attention is concentrated on language and structural features with the communicative aims. Tardy (2009) has argued that the ESP instructors need to develop a more sophisticated awareness by the students of the target genre. The ESP oriented implicit teaching also called the "contextual-awareness approach", encourages learners to discover genre rules, including linguistic and grammatical resources themselves (Colombi & Schleppegrell, 2002). That is, teachers do not directly inform learners of the particular lexical and grammatical writing rules in a particular genre, but use relevant questions on topics such as the reasons for writing (aim), the roles of writer, the readers of the writing (audience) to encourage learners to engage with the genre to find the rules for themselves (Pang, 2002). The debate between explicit and implicit genre-based instructions is still under discussion, with more researchers arguing that, for novice L2 writing learners, explicit genre-based instruction is more effective than implicit instruction (Ellis, Johnson, Henry & Roseberry, 1998; Mustafa, 1995). It also appears that a combination of explicit and implicit activities is being used in the ESP genre approach; Coe (2002) argues that both textual analysis and contextual awareness teaching activities provide many opportunities for EFL participants' involvement in L2 genre communication. ESP also provides non-native

writers with opportunities to develop a multi-faced understanding of both textual features and complex cognitive aspects of a particular genre.

Discussion of the pedagogical content of these two schools' genre approaches is ongoing, although genre scholars are not obsessed with the polarised dispute. Kumaravadivelu (2001) and Richards (2001) argued that the conflicts between various methods are misguided and may damage the classroom instructional design, and that each approach contributes to students' writing development. Similarly, Udomyamokkul, (2004) suggested that instructors need to draw from a variety of genre methods to solve problems and find solutions in particular contexts to meet learners' requirements.

In summary, genre-based writing practices and tasks contribute to L2 writers' development in three important ways. First, genre-based writing practices provide input, such as language and structural features with a primary focus on genre communication, for L2 learners in the initial stage. Genre-based methods facilitate students' engagement with unfamiliar genres; novice L2 learners must obtain structural and language knowledge before they can gain a deeper level understanding of the essential descriptions about a specific genre (Kutteva & Negretti, 2016). Second, L2 students must experience genre in supportive contexts before they can be involved in the authentic genre writing (Yasuda, 2011). Instructors need to create contexts in which students and teachers can jointly negotiate the use of meaningful features in the genre. Thirdly, to foster students' ability in writing, learners are encouraged to draw on a wide range of knowledge. The real purpose of genre-based writing tasks and practices is to help students achieve communicative genre writing through acquiring knowledge about the essential descriptions about a genre in different elements (Tardy, 2009). It has been suggested that it is difficult to acquire multi-faceted genre knowledge in only SFL or ESP environment (Yasuda, 2012). Hyland (2000) and Tardy (2009) both call for more empirical investigation of genre instruction and genre knowledge development.

2.5.3.2 Effects of Genre-based Writing Approaches

Several studies have explored the effect of genre-based practices and tasks on L2 writers' development (Cheng 2007, 2008; Christie, 2002; Coe, 2002; Dudley-Evans, 1995; Ellis, Johnson, Henry & Roseberry, 1998; Flowerdew, 2005; Gosden, 1998; Hammond & Macken-Horarik, 1999; Hyon, 2002; Mohan & Bechett, 2001; Ryshina-Pankova, 2010; Salager-Meyer, 1991; Schleppegrel, 2006; Sengupta, 1999; Yasuda, 2011). Research on SFL genre-based method, has focused primarily on students' lexicogrammatical knowledge and language development in writing (Byrnes & Sinicrope, 2009; Byrnes, Maxim, & Norris, 2010; Christie, 2002; Mohan & Bechett, 2001; Ryshina-Pankova, 2010; Schleppegrel, 2006; Yasuda, 2011). Mohan and Bechett (2001), for example, investigated the language knowledge of three L2 learners who learned English writing causally in Canada. They argued that SFL genre-based analysis of grammatical resources-based teaching could facilitate L2 students' language knowledge and language use in the writing classroom. Christie (2002), investigated different age groups of L2 students (6, 12, 14, 16 years old) working with three academic genres. They reported that the most notable language changes involved students' use of grammatical metaphors and their language knowledge. Yasuda (2011), in an intervention study to investigate the relationship between students' language performance and changes in the genre knowledge of 70 Japanese EFL students in a university, reported that their language improvement in writing was a significant predictor of their genre awareness. Byrnes and Sinicrope (2009) and Byrnes, Maxim, and Norris (2010) similarly examined the relationship between students' genre knowledge/awareness and their language performance in writing. The results of these studies commonly reported that L2 writers' advanced language ability, such as use of grammatical metaphor, was significant predictor of their advanced genre knowledge.

While SFL genre-based studies of students' writing development generally associate genre knowledge with lexicogrammatical use, ESP genre-based studies tend to associate learners' genre knowledge, especially structural knowledge and rhetorical

awareness, with holistic writing performance (Cheng 2007, 2008; Coe, 2002; Dudley-Evans, 1995; Ellis, Johnson, Henry, & Roseberry, 1998; Flowerdew, 2005; Gosden, 1998; Hammond & Macken-Horarik, 1999; Hyon, 2002; Salager-Meyer, 1991; Sengupta, 1999). Cheng (2008), for example, conducted a case study with a doctoral student who created three versions of the introduction. The results revealed obvious differences among these texts in terms of their effects on students' genre knowledge (e.g., formal knowledge and rhetorical awareness), as well as consistencies in the writing development of discourse move features. Ellis et al. (1998), investigating the genre awareness (e.g., rhetorical organisation and the linguistic feature) of 34 learners who learned English as a foreign language in Brunei, showed that genre-based writing teaching could facilitate students' genre knowledge in the writing classroom. Sengupta (1999), in an intervention study to explore the relationship between overall writing quality and genre knowledge development of ESL learners in a university, reported that learners' increased metacognition of genre was a significant indicator of their writing. Wette's (2017) intervention study with 47 ESL graduate students in New Zealand, to explore a possible correlation between ESP genre-based genre approach and genre knowledge development reported that genre-based writing teaching could facilitate ESL students' genre knowledge about different elements in the writing classroom.

The research on genre-based writing method, in which instructors draw from a variety of genre methods to find solutions to meet learners' requirements in a particular context, is relatively scant. With an increasing emphasis on genre-based writing instruction in the L2 context, especially EFL classroom, further research is needed. The extent to which students' genre knowledge progresses after the genre-based classroom practices within the classroom context is yet to be established as well.

Nearly 20 years ago, Kumaravadivelu (2001) asserted that the L2 language teaching is faced with an urgent need to construct a post-method pedagogy, which goes beyond the limitations of one exclusive single method and takes into account local participants' goals and needs within a particular institutional context. Genre-based

writing methods, defined as the use of various genre-based teaching activities to encourage learners' pursing a particular set of goals, appear to be effective in enhancing students' performance of a writing task (Badger & White, 2000; Cai, 2016; Deng, Chen, & Zhang, 2014; Huang & Zhang, 2020; Udomyamokkul, 2004). For example, Badger and White (2000) made an early contribution to the assessment of the effect of combining the process approach and genre approach to improve students' language performance and writing. They reported that, at that time, the effects of this process genre-based pedagogy on their language and literacy development had been evaluated with only a few students. Deng, Chen, and Zhang (2014) similarly explored the effect of the process genre approach on improving Chinese EFL students' genre awareness in translation settings. After the treatment, the results showed that the majority of the learners had developed a stronger sense of genre in translation. Cai (2016), in investigating 66 EFL graduate students after taking an ESP and SFL genre-based academic writing method, reported that the learners' knowledge of lexical phrases and genre structure improved significantly. Udomyamokkul (2004) in an experimental research study to explore the effects of the process genre-based instruction showed that the experimental students gained higher scores on the quality of argument writing than the control group. These studies focused only on the effects of the post-method genre pedagogy on students' genre knowledge, language, or writing outcome. Whether post-method genre pedagogy in a writing classroom will contribute to students' complex outcomes in the genre writing, such as students' genre knowledge and writing performance, is a yet an unexplored issue for L2 writing teaching.

2.5.4 Important Ideas about L2 Writing Development from the Perspective of Genre Knowledge

This section explains important ideas about L2 learners' development based on the perspective of genre knowledge, including development in the writing process and written texts; and development in multiple elements.

From the perspective of "learning-to-write" (LW), L2 development was defined as non-native speaker writers' increased ability in expressing themselves in English writing (Cumming, 2016). From this perspective, L2 students' writing developmental abilities were explored from two different facets: the writing process itself and the production of written texts (Ortega, 2011). In the former one, L2 writing was defined as a problem-solving process (Flower & Hayes, 1980). The latter focused on students' writing development from the perspective of their written text rather than the writing process (Wolfe-Quintero, Inagaki & Kim, 1998). By introducing genre factors, L2 students' writing development exploration experience was transformed from the single level to multi-levels in the two directions - writing process and written text.

From the writing process direction in the early stages, L2 writing was defined as a problem-solving process, which includes certain basic cognitive processes, such as planning, formulating, evaluating, and revising (Flower & Hayes, 1980). Thus, some researchers recognised individual student's L2 writing development as a psychological process. With the development of the genre-based writing approach in the L2 context, the definition of students' L2 writing development has evolved from a cognitive process (individual internal development) to a complex process (multi-faceted development), which includes students' negotiation with the external context such as a particular audience, a specific topic, a specific context and timescales; and students' negotiation with internal factors such as grammar resources, structural schemata, and construction process (Hirvela, Hyland, & Manchón, 2016). Therefore, the exploration of the writing journey extends from solely an internal process to a complex process.

From the written text perspective at the initial stage, L2 learners' writing texts were assessed simply from the linguistic direction, such as words, clauses, and grammar. Writing development, therefore, was conceived as a series of linguistic changes, which involved the use of more accurate and complex words, grammar and syntax. However, genre scholars, who see writing as discourse, look beyond surface linguistic patterns to see writing as representing a discourse community (Cumming, 2012; Manchon, 2011;

Tardy, 2009). It is notable that genre knowledge theories contribute precisely to these studies in that L2 writing means texts with typical structures and conventional expressions in a particular context (Hyland, 2011). The measurement of writing development, therefore, focuses on students' writing complexity rather than linguistic accuracy and fluency (Robinson, 2001; Kormos, 2011; Bulte & Housenm 2014; Polio, 2017).

2.6 Research on Students' Genre Knowledge in China

Research on enhancing students' knowledge/awareness of genre in English writing through a genre-based writing approach in the Chinese EFL context is important for the following two reasons. Firstly, the investigation of EFL student writers' genre knowledge in China will contribute to research on genre knowledge in other similar EFL contexts, such as Korea, Japan, and India. Secondly, there is a growing need for Chinese students of EFL to improve their written communication in English using various genres and in a range of contexts as globalisation progresses. EFL Chinese students, however, experience obstacles to become competent in using genre appropriately in English writing because they have limited opportunities to engage in academic English writing practices in their tertiary level education. They also have few opportunities for writing in English for communication in daily life outside the college context. Therefore, it is important to develop Chinese students' knowledge in specific genre and ability to use genre appropriately when writing in English in the classroom setting.

Empirical studies of Chinese students' genre knowledge exploration are underdeveloped; most investigations have been of graduate and English major dimensions, with little research on undergraduate EFL students. In these studies, influenced by the traditional English teaching, which focused on the only linguistic knowledge, Chinese students were often perceived to lack the understanding about the role of genre in their writing (for example, Wang, 2016; Yang, 2016; Xu, 2018; Qing & Jin, 2011).

Wang (2017) made a contribution through assessing the relationship between students' genre knowledge development and their self-direction with eight EFL English major students in China. He concluded that in the genre-based writing classroom context, self-direction is an important factor in encouraging writers to write with a focus on genre. Learners who view a thesis writing task as merely doing an assignment, do not appear to develop the capability to use their genre knowledge for disciplinary writing. Jin (2016) analysed a corpus with 90 Masters' theses from Chinese EFL students and ESL students in New Zealand and America to investigate their genre knowledge. She also used the social educational community and learners' personal factors in different contexts to explain the different status of ESL and EFL students' genre knowledge. The three groups of students differed in their genre knowledge which appeared to be directly influenced by local disciplinary cultures and learners' personal factors, such as former community and gender. Chinese EFL students exhibited a lower level of genre knowledge compared to the ESL students, which suggests that the lower scores of the EFL students were a reflection of contextually cultural influences.

Other researchers have examined Chinese EFL university students' genre knowledge development after a writing intervention. Cai (2016), for example, assessed the development of 66 Master of Education students'(MEd) genre knowledge of language and structural elements by using genre knowledge questionnaires and written texts following genre-based instruction. The MEd students showed significant gains in genre knowledge of language and structural elements, moreover, a multiple regression analysis implying that the growth in their use of general lexical phrases in the written texts wad closely related to the development of genre knowledge of language features and structural moves. This study also demonstrated, empirically, the impact of incorporating SFL school genre-based pedagogy and ESP school genre-based explicit instruction on Chinese EFL student writers' knowledge and writing behavior in a specific genre. Zhang (2013) made a notable contribution through a study that examined the pedagogical implications of genre-based education for Business English students'

genre knowledge development. He concluded that, although genre-based education can promote genre knowledge achievement for Chinese students to a certain extent, the students showed a lack of understanding of subtle aspects of genre knowledge after the instruction; this included connotations of words and expressions, the specific procedures of genre production, and appropriate selection of information in the content level. Zhang proposed a situated L2 genre pedagogy specifically for Chinese EFL university classrooms in which EFL student writers should be taught to engage in a professional role by using the formal, process, rhetorical, and subject-matter knowledge of the genre.

Huang's (2014) research is notable because it explored the complex development of different elements in one Chinese graduate student's genre knowledge both in the writing process and in written texts with data from his oral interviews and multiple drafts after genre-based instruction. She posited that students' genre knowledge is a matrix of different aspects of knowledge, and that, in this study, the participant gained more formal and process knowledge than the rhetorical knowledge. Huang argued that explicit genre-based instruction on rhetorical moves and linguistic features helped the student gain knowledge of different aspects of the genre. She finally put the question of how rhetorical knowledge can be explicitly taught in the EFL writing classroom.

A comprehensive examination of the nature of EFL Chinese students' knowledge of genre for writing is needed, especially those at the undergraduate level. The developmental patterns of genre knowledge and the suggestion of L2 genre pedagogy specifically for Chinese EFL university classrooms need to be examined.

2.7 Summary of Chapter Two

This chapter presented the rationale for conducting this research to explore the complex development of genre knowledge and writing performance among EFL Chinese undergraduate students during their writing course.

The first section introduced the theoretical frameworks of the current research, describing the characteristics of sociocultural theory and genre knowledge model which

guided my exploration of teaching of writing and students' writing knowledge development. The second section explained the nature of argumentative writing in L2 English writing contexts. After an examination of argumentative writing qualities, an explanation of two levels (structure and substance) to identify argumentative writing performance was presented. It described the structural elements and provided explanations of quality to support the judgment criteria of argumentative writing performance.

The following section provided a detailed picture of the nature of the genre, genre knowledge, and genre-based writing approach. The concept and characteristics of the genre of argumentation were described first. The concept of genre and two kinds of characteristics (discourse community and intertextuality) in the genre contributed to the design of genre-based teaching and the understanding of students' genre knowledge. That is, the design of genre-based writing practices occurs within a particular situation, and the interrelated texts in the practices interact to form an intertext for each student are needed in the classroom. Writers' development should be measured in a specific genre, and the investigation of students' varying genre knowledge in different timescales should be considered. Then, it provided a detailed explanation of the complex nature of genre knowledge, describing the multiple elements of the concept of genre knowledge when its current state and developmental ways in different situations are considered. While most early genre knowledge studies focused on a specific element, recent studies have examined its complicated progress from both independent and interdependent perspectives. These recent studies focused on the development of genre knowledge on a specific element and the interaction between elements. It was argued that the factors affecting students' genre knowledge development can be explored from contextual and cognitive perspectives. Two important ideas related to the genre knowledge were introduced to understand better the development of genre knowledge in L2 writing. These included exploring students' writing development from both a procedural and textual perspective providing a full picture of writing development in

multiple orientations. It was argued that, consequently, L2 writing development should be explored taking account of multiple elements in various timescales and specific situations, focusing on both the writing process and written text directions.

The third section explained the benefits of introducing a genre-based writing approach to explore L2 writers' development in specific genres. The review of the literature suggested that genre-based writing approach from different schools appears to be effective on students' genre knowledge and writing performance in various angles. Whether genre pedagogy in a writing classroom will contribute to EFL students' complex outcomes in the genre writing, such as students' knowledge of argumentative genre and argumentative writing performance, is a yet an unexplored issue.

The last section illustrated further the need to explore the nature of students' genre knowledge among Chinese EFL student writers. The developmental patterns of genre knowledge and a suggestion of a situated L2 genre pedagogy specific for Chinese EFL university classrooms need to be further investigated.

Finally, according to previous models and theories of genre and genre knowledge, EFL students' genre knowledge in this study can be divided into three dimensions: formal knowledge, process knowledge, and rhetorical knowledge (Tardy, 2009). Subject knowledge was not explored in this study for two reasons. First, genre is considered as a context rather than the professional object of this study, thus, more attention is given to the process of students' knowledge acquisition rather than subject application. Second, the participants of this study are Chinese sophomores, who are not required to engage with specific subject matter during this learning programme.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This methodology chapter provides a detailed description of how the study was designed. It starts with a systematic description of the research paradigm for the selection of the methods. This is followed by a brief outline of the research design about the information on the participants and their experiences in this study. It then outlines the pilot study and present the modifications to the writing tests and questionnaires as well as data collection and data analysis procedures. The procedures for the main study are then described, including a pre-instruction investigation, writing instruction (genre-based writing intervention for the intervention group and the conventional writing course for the comparison group), and post-instruction investigation. The ethical considerations are presented at the conclusion of the chapter.

3.2 Philosophical Worldview

In the initial stage of conducting research, the researchers' worldview is important, as the research design and methods are influenced by the worldview the researcher holds. As Creswell (2014) pointed out, the worldview is "a general philosophical orientation about the world and the nature of research that a researcher brings to a study" (p. 82). He also noted that other researchers have referred to this term as paradigms (Lincoln, Lynham, & Guba, 2011) and epistemologies (Crotty, 1998). Researchers have had an ongoing debate on how to explain and categorise the beliefs, worldviews, or paradigms which researchers bring to their inquiry. Generally, there are three major philosophical worldviews in the humanities and social sciences, they are positivism, constructivism, and pragmatism (Creswell, 2014; Crotty, 1998). I adopted the pragmatic worldview as

the philosophical justification for the methodological approach, and the reasons for my decision will be presented next.

3.2.1 Pragmatism

Firstly, the pragmatic worldview is born of the consideration of "actions, situations, and consequences rather than antecedent conditions" (Creswell, 2014, p.10). In other words, pragmatism emphasises the constant renegotiation, debate, and interpretation of usefulness in unpredictable situations (Crotty, 1998). Given that the focus of this study was EFL Chinese undergraduates, pragmatism was best situated as this group of students was still living 'on the edge' in the L2 writing field. Some remarkable theories and ideas in the L2 writing context will be revisited and re-interpreted in this study. Secondly, by taking a pragmatic worldview the means, solutions, and applications, used in one setting can be used to inform a changed or different context. It also permits the application of various approaches to pursue one problem (Creswell, 2014). The character of pragmatism justifies my exploration of EFL Chinese students' development in their writing using a number of complementary method because EFL students experienced and live in a complex language environment. Therefore, taking the pragmatic worldview is appropriate for my research and for answering the research questions in this study.

3.2.2 Mixed-Methods Design

Mixed-methods design is a methodological paradigm along with quantitative methods and qualitative methods (Johnson & Gray, 2010). It is defined as a combination of both statistical quantitative findings and thick descriptions of specific qualitative examples (Spalter-Roth, 2000). According to Crotty (1998), a mixed-methods design is the most popularly used methodology of research from the perspective of pragmatism. The pragmatic worldview holds that: a) The world that is not an absolute unity; b) the external world is independent from, but lodged in, the mind; and c) research always exits in "social, historical, political, and other contexts" (Creswell, 2014, p. 98). Mixed-

methods research is concerned, similarly, with an appropriate way to "describe, predict, and understand social phenomena, such as the variation in and contributors to differences in educational effectiveness" (Sammons, 2010, p. 699). Given that this research was designed to explore EFL students' complex EFL writing development, situated in a writing course, including their knowledge about different elements in argumentation and their writing performance, a mixed-methods design was the most appropriate choice for my study. Such a design allowed my use of different complementary methods to investigate the problems raised earlier in the Introduction (see 1.6) and the Literature Review (see 2.7) chapters.

This research explored not only Chinese EFL undergraduates' changes of knowledge about different elements in argumentation but also identified the underlying reasons. A mixed-methods design was adopted to investigate students' knowledge about different elements because knowledge accessing data from a range of source, using a number of instruments can achieve deeper and more generalisable understandings than a single approach gain. Specifically, quantitative data from questionnaires, qualitative data from questionnaires, and qualitative data from interviews provided a rich understanding of participants' knowledge about argumentation. The mixed-methods research, therefore, was adopted for the following reasons: Students' writing development is complex as informed by the theoretical foundations identified in Chapter Two; students' knowledge is multifaceted, dynamic, and constructed within different communities; the reasons of students' knowledge development are complex as identified in Chapter Two; and a single paradigm quantitative or qualitative, was insufficient for the purpose (Miles, Huberman, & Saldaa, 2014). A mixed-methods paradigm is described as "drawing on the strengths and minimising the weaknesses of both types (quantitative and qualitative) of research" (Connelly, 2009, p.31). As the strengths of quantitative methods are "conceptualising variables, profiling dimensions, tracing trends and relationships" (Punch, 2009, p. 290), they contribute to investigations of trends in changes in knowledge. The substance of Students' change in their

knowledge and underlying reasons for the change, needs to be probed deeply through qualitative data. A weakness of the quantitative method shows that "it is impossible to do justice to the subjective variety of an individual life" (Dörnyei, 2007, p. 35). Qualitative methods are concerned with participants' contextually embedded experiences which reveal students' the full complexity of development of knowledge (Miles, Huberman, & Saldaa, 2014). Synthesis of findings from statistically analysed quantitative data, and more detailed analyses of qualitative data, are likely to offer more fruitful results than the either quantitative or qualitative research alone.

A quantitative method, using numbers to describe and understand social phenomena, was adopted to investigate students' changes in writing performance in argumentation, as the concepts underlying the variables in the written texts were easier to track. Writing performance is defined as the typical structured and conventional expressions in a particular context (Hyland, 2011), or a series of linguistic performances with words, grammar, and syntactic (Bulte & Housen, 2012). As argued by Punch (2009), quantitative methods were warranted because of their strengths in "conceptualizing variables, profiling dimensions, tracing trends and relationships" (p. 290). Furthermore, a quasi-experimental design, including experimental and comparison groups, was applied to collect data to assess if the genre-based writing approach affected participants' development in knowledge of different elements and writing performance. According to Gass (2015), if the two groups behaved differently after the intervention, whatever they did to the experimental group may have caused the change.

3.3 Research Design

3.3.1 Overview of Research Design

This quasi-experimental mixed methods study aimed investigated EFL undergraduate students' writing development after the writing instructions (Sammons, 2010). Table 3.1 presents an overview of the research design.

Table 3.1 Overview of the research design

Procedure	Data Collection Methods	Participants
Pilot study Instrument and intervention piloting	Argumentative writing test; Questionnaire; Interview Genre-based writing intervention	20 EFL Year-2 undergraduate students
Pre-instruction Mixed methods data collection Quantitative data collection	-Pre-argumentative writing test -Pre-questionnaire -Pre-interview	EFL students (N= 118) Year-2 undergraduate students Experimental group (N=4) Comparison group (N=4)
Instruction Writing instruction in experimental and comparison groups	-Genre-based writing intervention (8-week) for the experimental group	EFL Year-2 undergraduate students Experimental group (N= 59) Comparison group (N=59)
Post-instruction Mixed methods data collection Quantitative data collection	-Post-argumentative writing test -Post-questionnaire -Post-interview	EFL students (N= 118) Year 2 undergraduate students Experimental group (N=4) Comparison group (N=4)

Before any writing instruction, EFL undergraduate students' genre knowledge, discourse moves, writing substance, and overall writing quality were examined. First a test of argumentative writing was administered by the researcher and completed by students selected through convenience sampling to investigate learners' writing performance (structure, substance, overall quality), followed by a questionnaire on the students' knowledge of argumentative writing. Semi-structured interviews were undertaken with eight participants, randomly selected from experimental group (N=4) and comparison group (N=4). The data from these instruments were triangulated to describe learners' present situation. Table 3.2 provides an outline of this phase, with the detailed information presented in section 3.5.

Table 3.2 Summary of pre-instruction data collection and analysis

Pre-instruction	
Research objectives	Map out current situation of EFL students' genre knowledge, discourse moves, substance, and quality in argumentation
Participants	1. EFL Year-2 undergraduate students in China (N= 118) for pre-writing test and pre-questionnaire 2. Experimental group (N=4); comparison group (N=4) for pre-interview
Data collection	1. The Writing Task (see Appendix 3) was administered to 118 Chinese undergraduate students through convenience sampling. 2. EFL students' Argumentative Knowledge Questionnaire (see Appendix1) was conducted with these 118 Chinese undergraduates after the writing test. 3. Semi-structured interviews with 8 students were randomly selected from experimental and comparison groups.
Data analysis	Content analysis; thematic analysis; independent-samples t-tests

The participants were placed into experimental and comparison groups based on their English proficiency writing scores in the pre-writing test (see 3.5.3.1). There were equal numbers of high and low proficiency students in each group. They were invited to

participate in eight-week course with different instructional writing methods; the experimental group was taught by the genre-based pedagogy, while the conventional model/content-based method was used in the comparison group, without any intervention. Details of the data collection and analysis of this stage are described in section 3.6. Table 3.3 provides an outline of this phase briefly.

Table 3.3 Writing instruction

Writing Instruction	
Research objectives	To conduct the genre-based instructional intervention in the undergraduate writing class in China.
Participants	EFL Year-2 undergraduate students: Experimental group (N= 59); Comparison group (N=59)
Instruction	Genre-based approach in the experimental group and convention approach in the comparison group

To the end of the writing courses, a similar mixed methods design, including post-writing test, post-argumentative writing knowledge questionnaire, and post-interview was conducted again to investigate any changes in learners' argumentative knowledge and performance after the different writing instructions. The data collection and analysis of this stage are described in section 3.7. The outline of the design in this section is presented in Table 3.4.

Table 3.4 Summary of post-instruction data collection and analysis

Post-instruction	
Research objectives	Investigate EFL students' genre knowledge, structure, substance, and quality in argumentation after the writing instructions.
Participants	1. Experimental group (N=59) and comparison group (N=59) for post-writing test and post-questionnaire. 2. Experimental group (N=4); comparison group (N=4) for post-semi-structured interview.

Data collection	1. The Writing Task (see Appendix 3) in both groups after the writing instruction.
	2. EFL students' Argumentative Knowledge Questionnaire (see Appendix 2) was conducted in these two group after the writing test.
	3. Semi-structured interviews with 8 students were the same with the pre-instruction interview.
Data analysis	Content analysis; thematic analysis; paired samples t-test; analysis of covariance (ANCOVA); repeated-measures ANOVA

3.3.2 Research Questions

Three research questions were formulated regarding EFL students' changes within a writing course to establish a comprehensive view of EFL students' genre knowledge and writing performance development during L2 genre-based writing approach. Adopting a mixed-methods approach, this study focuses on both students' developmental trend and content. The research questions are as follows:

Research Question 1: What effect does a genre-based approach have on students' knowledge about argumentative writing (argumentation)?

RQ 1.1 How did experimental and comparison groups change respectively in students' knowledge about argumentative writing (argumentation) after different writing interventions?

RQ 1.2 Did the experimental and comparison groups differ in students' knowledge about argumentative writing (argumentation) about the elements (formal knowledge, process knowledge, and rhetorical knowledge) in the post-test? If so, what were the reasons?

RQ 1.3 Did the high writing-proficiency and low writing-proficiency students differ in their knowledge about argumentative writing (argumentation) about the elements (formal knowledge, process knowledge, and rhetorical knowledge) after different writing instructions?

Research Question 2: What effect does a genre-based approach have on the quality of students' argumentative writing (argumentation)?

RQ 2.1 How did experimental and comparison groups change respectively in students' argumentative writing performance about discourse move structure, writing substance, and overall writing quality after different writing interventions?

RQ 2.2 How did the experimental and comparison groups differ in students' argumentative writing performance about discourse move structure, writing substance, and overall writing quality in the post-test?

RQ 2.3 How did the high writing-proficiency and low writing-proficiency students differ in their argumentative writing performance about discourse move structure, writing substance, and overall writing quality after different writing instructions.

Research Question 3: What is the role of development of Chinese EFL students' knowledge about the elements in argumentation in helping their writing?

RQ 3.1 What characteristics of students' knowledge about the elements in argumentation serve as positive changes?

RQ 3.2 How do these characteristics of development about Chinese EFL students' knowledge in argumentation work on their writing?

3.4 Pilot Study

A pilot study was conducted before the main study with a group of 20 second-year undergraduate students who were recruited from the same university in which the main study took place. They had similar backgrounds to the participants in the main study. The pilot study was carried out to: (1) Ascertain the readability of the questionnaires and writing tasks prior to being used in the main study; (2) calculate the time required to complete the writing test and questionnaire; (3) collect authentic data from the writing test, questionnaire, and interview to establish satisfactory inter-rater reliability of the data analysis (writing scores, text code, open-ended questions code, and interview questions code) between coders.

3.4.1 Modification to the Questionnaire

Several steps were taken to establish the validity of the questionnaire in evaluating students' genre knowledge in argumentation. The literature, and some established instruments used in investigating students' genre knowledge and genre awareness, were consulted to develop my own questionnaire; these included a genre awareness questionnaire (Yasuda, 2011), a genre knowledge interview (Huang, 2014; Tardy, 2009), and a genre knowledge test (Zhang, 2013). For the pre-instruction questionnaire, 15 items were generated initially to explore students' background and knowledge of argumentation. Two experts in the field of writing and psychometrics were invited to examine the initial list of items, and to check the relationships among the theoretical rationale, research questions, and 15 questions in the questionnaire; as a result, five questions were deleted. After five EFL undergraduate students were asked to check the readability of these ten items, some unreadable items were modified. These genre knowledge questions were used again in the post-instruction questionnaire to probe students' changes about knowledge after instruction.

This modified version of the questionnaire was given to 20 participants to check the readability of the items and identify the completion time. Students were required to produce a concise description of the problems and difficulties found in the questionnaire, and to explain any confusions. Based on their recommendations, the wording of some items was modified. Completion items for the questionnaire, of 30 minutes for the pre-questionnaire and 25 minutes for the post-questionnaire, were established based the slowest time recorded by the trial participants.

3.4.2 Changes in the Writing Test

The 20 participants were also invited to complete two writing tests to select the topic, verify the prompt, and identify the completion time of the two writing tasks. The process of the topic selection (education) will be described more fully in 3.5.2.1. Participants were asked to evaluate the readability of the writing prompts, and to provide reasons for any confusing aspect. Based on their recommendations, some amendments were made.

I, initially, considered making the completion time of the writing test 60 minutes, according to the guidelines in CET. The pilot study, however, established that some students could not finish the writing in 60 minutes, and 65-minutes was the slowest recorded time. Accordingly, 65-minute was set as the completion time for the writing test in the main study.

3.4.3 Improvement in Data Coding and Scoring

To develop a reliable knowledge coding system, the data from the pre- and post-questionnaire in the pilot study were used to pursue a trial coding, to generate and modify the coding frame for open-ended questions. Firstly, two coders were asked to code 20 students' answers from the open-ended questions independently. The basic categories (formal knowledge; process knowledge; and rhetorical knowledge) were supplied during their coding work. Next, some subcategories were formed by summarising the coding units from students' answers. Each subcategory was then put into one of three main categories. Two coders presented their coding system in Excel forms, with all coding unites entered into the cells: the coding units are the rows and the categories / subcategories are the columns. Finally, the coding systems of two coders were compared, resulting in some double emergent codes being recorded, some irrelevant codes were eliminated, and some inconsistent codes discussed. After the discussion, the initial version of the code system of students' knowledge about argumentation was built. This trial coding system was deeply discussed thoroughly in the main study.

In this pilot study, two raters were invited to assess five samples of argumentative writing with the scoring scheme in Appendix 6 to discuss any differences in scoring between them. These two raters independently scored 15 pieces of students' essays; the coefficient alpha of these two raters was .86, which indicated that the reliability between them was satisfactory for the pilot stage. The scoring criteria were discussed again in the main study.

3.5 Pre-Instruction

This section documents EFL Chinese undergraduates' knowledge about different elements in the argumentative genre, and their discourse move structures, writing substance, and overall writing quality in argumentation before the writing course.

3.5.1 Participants Information

The following two subsections will describe participants' information including how participants were selected and the characteristics of these participants.

3.5.1.1 Population and Sample

This study took place in 2016 (September-November) in a university with a large number of undergraduate students (n=27000) in Northern China. In this university, College English is a compulsory course for all non-English major undergraduate students during the first two years in their four-year college programme. With ethical approval from the ethics committee of university, 142 sophomore undergraduate students were recruited on a voluntary base. Convenience sampling, a type of Haphazard Sampling where "members of the target population that meet certain practical criteria" (Etikan, Musa, & Alkassim, 2016, p. 2), such as they easy to be gathered, available at a given time, or intend to participate are included for the purpose of the research. Convenience sampling was used in this process as it is a quick way to collect a large number of participants (Creswell, 2014). This sampling approach, however, has also been criticised as selected participants cannot represent the broad body of the group (Dörnyei & Taguchi, 2010). Under the unified system of National College English Curriculum Requirements (Ministry of Education, 2007) and College Entrance English Examination in China, non-English major undergraduate students in the same university could be considered a homogenous sample for English education research, as these students will have achieved a certain English criterion to enter the university; They also will have completed a compulsory College English Course in their freshman year to as

part of their further study in the university. Therefore, the convenience sample was expected to provide credible information about undergraduates' current writing status.

Among the 142 undergraduates recruited at the beginning of the study, 134 students met the two requirements for participation: attended all courses and completed all essays and questionnaires. A total of 268 argumentative papers from 134 undergraduate students' pre- and post-tests were collected. However, 16 students' papers (32) were removed from the final analysis: Nine students' papers were incomplete, as their writing ended in the middle of the paragraph with less than 200 words in total; seven students' paper failed to address the argumentative writing task properly in their pre- or post-test. Some of these students discussed the importance of learning English or offered some suggestions on how to improve students' English rather than responding to the teacher's suggestion about English instruction at postgraduate level and high school curriculum reform, as required by the task.

As a result, 118 students were allocated (59 students in the experimental group and 59 students in the comparison group); 236 argumentative texts (59 experimental group students' pre- and post- writing texts and 59 comparison group students' pre- and post-writing texts) were analysed in this study. Among these 118 students, 36 students were selected as high writing proficiency students based on their writing scores in the pre-writing test (see 3.5.3.1), half of the high writing proficiency students (N=18) were assigned into the experimental group, and another half of them (N=18) allocated into the comparison group; 38 students were selected as low writing proficiency students based on their writing scores in the pre-writing test (see 3.5.3.1), half of the low writing proficiency students (N=19) assigned into the experimental group, and another half (N=19) distributed into the comparison group. In addition, eight participants (N=4 in experimental group; N=4 in comparison group) selected using convenience sampling (Creswell, 2014) were invited to attend an interview to explore their writing experience and genre knowledge bout argumentation in depth.

3.5.1.2 Participants

All the participants (N = 118) speak Chinese as their mother tongue, and they all come from non-English major backgrounds, including Materials Science (N = 20), Engineering (N = 18), Geology (N = 15), Mining (N = 12), Statistics (N = 18), IT (information technology) (N = 20), Hydrology (N = 20), and Business (N = 19). Most are between 18 and 20 years of age, and all had their Elementary and Secondary Education in mainland China. Most of these participants had learned English for about eight years, and fifty-eight percent (N=83) were males, and forty-two percent (N=59) were females.

3.5.2 Instruments Development

3.5.2.1 Argumentative Writing Test

Argumentative writing was used in this study with a given prompt as it is a popularly used writing assessment method in the EFL academic field. It is included in the standard English proficiency tests such as CET (College English Test), TOEFL (Test of English as a Foreign Language), and IELTS (International English Language Testing System) and as a classroom writing test for EFL students, because it effectively evaluates students' critical thinking, viewpoint expression, and linguistic ability (Hirose, 2003). As argued by Hyland (1990), the argumentative essay is one of the most familiar and important genres in the EFL academic context as it is useful to stimulate students' ability to analyse resources, create claims, and argue for different perspectives. Furthermore, Chinese university students are regularly required to produce argumentative writing in most academic writing courses (Liu & Li, 2017).

Although a variety of argumentative topics could be chosen among various argumentative writing exams, I developed the argumentative topic and prompts for this study for the following reasons. Firstly, to stimulate students' desire for demonstrating, arguing, and discussing, a quasi-authentic argumentative context was constructed for this writing test; the prompts were designed as a real discussion, hoping to draw out students' authentic argumentation. Secondly, this is a quasi-experimental research, and

the scores of this writing test were used to group participants. Moreover, students' texts would be compared in terms of their discourse moves, writing substance, and overall writing quality. Therefore, the selected topic should have a moderate level of difficulty.

The following content presents the process of the selection of the writing topic based on the reasons articulated above. Firstly, six potential topics (culture, environment, crime, education, entertainment, government) were framed, five university English teachers then commented on their students' likely interests in the topics. Three topics were deleted based on their comments, and the remaining three topics (environment, education, and entertainment) were further evaluated for their difficulty levels by the 20 students in the pilot study, who assigned numbers for these three topics from 1 (easiest) to 6 (hardest). Finally, the easiest and most difficult topics were removed, and the remaining topic, education, was selected for in my research. In addition, two similar writing prompts about "education" were designed. Half of the participants wrote their essays on the basis of prompt A, and the rest of them wrote on the topic according to prompt B.

All participants were required to write 250 words for the argumentative writing test in 65 minutes in the writing classroom. All students were not allowed to search for information from a textbook, the internet or ask for help from others. The two writing prompts used in this phase are presented in Appendix 3.

3.5.2.2 Scoring Rubric

Participants' overall writing quality about argumentative writing was evaluated comprehensively using a scoring rubric, which is a useful way to judge students' writing competence at complex level (Josson & Svingby, 2007). To ensure the appropriateness of the scoring scheme for argumentative writing, I combined Jacobos et al.'s (1981) and Glasswell et al.'s (2001) asTTle marking rubrics (argue or persuade). Firstly, Jacob et al.'s scoring rubric has been popularly used to evaluate L2 writers' overall writing quality (Teng, 2016); its five-scale scoring criteria, including "content", "organisation", "language", "vocabulary", and "mechanics" helps raters to match rating tasks in a uniform way (Cohen, 1994). As it is a general criterion, it does not consider detailed

genre and style in students' writing assessment, whereas Glasswell et al.s' (2001) argumentative or persuasive writing rubric, designed with close attention to context factors, is suitable for assessing argumentative writing. The description of the evaluative standard in the rubric, however, is vague, and hard for L2 raters to use it directly. Thus, in this study I combined these two rubrics with a series of validity checks.

The process of validating the holistic rubric took several steps. First, two experts in the field of L2 writing assessment were invited to examine the initial writing rubric. They checked the structure, content, and items of this argumentative writing rubric, and identified six aspects in this scoring scheme: "structure and content", "coherence", "audience awareness and purpose", "language resources for achieving the purpose", "vocabulary and grammar", and "mechanics". Secondly, the descriptions for each item were examined in several rounds. In the first round, two raters, who were applied linguistics PhD students and experienced writing instructors independently scored 16 participants' argumentative papers randomly selected from the data, using the newly combined scoring rubric. The inter-rater reliability using coefficient alpha was .83 before a negotiation. In the second round, based on the feedback from the two raters, I revised the rubric to make sure that the descriptions of each item were clear and readable in the rubric. In the third round, using the revised rubric, the two raters independently scored another 20 randomly selected participants' papers. The inter-rater reliability, coefficient alpha, was .89 before a negotiation. I, then, asked for the raters' feedback on the revised rubric and made some further minor changes. Finally, the ultimate argumentative writing scoring scheme was accepted and is presented in Appendix 6.

3.5.2.3 Pre-instruction Questionnaire

I developed an open-ended questionnaire to explore Chinese EFL students' knowledge in argumentation with following three steps - item construction, psychometric evaluation, and questionnaire piloting (Dörnyei & Taguchi, 2010). Open-ended questions were used in this unexplored area as Dörnyei and Taguchi (2010) argued that the open-ended questionnaire is regarded as an effective instrument in "providing a greater richness resources than quantitative data" (p. 36). As far as I know, no study has

fully investigated college students' genre knowledge in the academic writing field in China. Even though the open-ended questions restricted the range of information to some extent because students were given limited time to finish open-ended questions, this measurement was useful to collect data in an unknown, anticipated field within a lot of participants (Dörnyei & Taguchi, 2010).

At the stage of item construction, a series of established frameworks about students' knowledge exploration in both L1 and L2 writing contexts were summarized first (Bereiter & Scardamalia, 1987; Berkenkotter & Huckin, 1995; Carter, 1990; Gentil, 2011; Negretti, 2015; Tardy, 2009). These students' writing knowledge models were discussed with some EFL writing researchers from different universities in China. These discussions included face-to-face communication in the professional English writing conference or training events and internet communication in the English writing teaching groups. The discussion topics included: What is writing knowledge; what argumentative writing knowledge includes; how is L2 students' writing knowledge measured? After combining existing frameworks and considering the situation in China, 15 items were adapted and modified from some genre knowledge studies (Tardy, 2009; Yasuda, 2011; Huang, 2014; Zhang, 2013). Tardy's (2009) L2 students' genre knowledge model, including formal knowledge, process knowledge, rhetorical knowledge, and subject knowledge in specific genre was discussed repeatedly, and some changes were made to this model taking account of the English writing education context in China. For the participants in this study, when moving from high school to university, they were under the academic influence in the classroom rather than being placed in an authentic professional context of EFL writing, as they do not need to complete academic English reports and theses in their education. Yasuda's (2011) EFL students' genre awareness questionnaire, the genre knowledge interview for EFL students (Huang, 2014), and the genre knowledge test for EFL students (Zhang, 2013) were mainly considered when designing items for this open-ended questionnaire. The subject knowledge was changed in this study as the sophomore undergraduate students in this university in China have not yet been exposed to authentic academic or writing

in English for specific purposes (ESP) and do not need to submit assignments or homework for their major subjects in English. There are four distinct dimensions in this questionnaire: 1) Formal knowledge (macro-structure, micro-linguistic; content); 2) process knowledge (psychological process; intertextuality); 3) rhetorical knowledge (writers' understanding of their position, the purposes of genre; communicative purposes; audience characteristics); and 4) personal knowledge (writing experience).

The psychometric measurements were then reviewed to ensure the content validity of these open-ended questions: The readability of the items was checked by five college English writing teachers; two experts in the field of genre and psychometrics were invited to examine the items. They checked the relationship between the theoretical rationale, research questions, and the existing questions in this study. Finally, 5 subjects were removed, because of a low rating, so that the revised version had 10 open-ended questions to identify students' argumentative knowledge.

The validity and reliability of the questionnaire, piloted with 20 EFL undergraduates in the classroom as recommended by Dörnyei and Taguchi (2010), is reported in section 3.4.1. The questionnaires were developed in English and translated into Chinese so that the participants could easily understand them. This process included the researcher's translation from English to Chinese version and lecturer's back-translation from Chinese to English. The differences between these English and Chinese versions were discussed to ensure the quality of the Chinese version; both English and Chinese versions of the questionnaire were piloted to check that the participants could understand them to strengthen their validity (see 3.4.1).

Overall, there are two sections in the pre-instruction questionnaire. The purpose of the first part of the questionnaire was to collect participants' individual English writing learning experiences relate to their length of time they had learnt writing in English, and the extent of argumentative writing in English they done over the last year. In the second part, eight items were used to explore students' knowledge about different elements of argumentation before the writing instruction, these included formal knowledge, process knowledge, and rhetorical knowledge. The open-ended questionnaire is in Appendix 1.

3.5.2.4 Semi-Structured Interview

Semi-structured interviews in this study were conducted to elicit participants' reflections on any change in their knowledge of argumentation and the relevant writing instructions; that is, the researcher asked different questions flexibly to probe participants' knowledge and self-refection about their knowledge and experience. The retrospective interview enables participants to recall and reconstruct experiences (Fraenkel, Wallen, & Hyun, 2011). After completing the writing tests and questionnaires, eight students (four in the experimental group; four in the comparison group) were invited to participate in a retrospective semi-structured interview to recall their memory; the questions I drafted concerned learners' knowledge of argumentation and their personal experiences about writing instruction. Appendix 4 presents these interview questions.

3.5.3 Procedures

At the beginning of this research, all participants were invited to take a test on argumentative writing to be completed within 65 minutes in the classroom. Prior to this, all participants were required to complete, within 30 minutes, a questionnaire designed to collect students' writing background and knowledge of argumentation. Eight of the participants were selected (four from experimental group, four from comparison group) to complete an interview before the writing instruction commenced. The writing test, questionnaire, and interview were anonymous, and all participants have read and signed the Participant Information Sheet (PIS) and Consent Form (CF) before the research. They were also informed of the right to withdraw their data, or withdraw from the research, at any time. Some key steps in the data collection will be presented later concerning participants' grouping, completion of the writing test, questionnaire, and interview steps.

3.5.3.1 Grouping the Participants

To ascertain that participants' writing proficiency across experimental and comparing groups is similar, researchers generally use a pretest, for example the use of target

features in a writing test, the global scores on the writing tasks, or a vocabulary and grammar test (Ong & Zhang, 2010; Van Beuningen, De Jong, Kuiken, 2012). Following the pre-test in my research, the participants were divided into proficiency groups based on their writing scores. The assessment of participants' writing quality included several factors, including the accuracy of grammar and lexis, the vocabulary range and language usability, textual coherence, and argumentative ability in writing. Then, all participants were stratified into two proficiency groups (high and low) according to their writing scores. Finally, the participants of each level were randomly assigned to the experimental and comparison groups. The numbers in each group changed because of participants' withdrawal during the data collection period.

3.5.3.2 Writing and Questionnaire Session

Firstly, all participants received their writing assessment and questionnaire package which included the writing prompt, a piece of blank note-taking paper, a lined sheet for argumentative writing, and a four-page paper questionnaire. At the same time, I gave all participants an oral presentation on the content and purpose of the writing prompt, and questionnaire. All participants were monitored for the remaining time during the writing test (65 minutes) and the quiz (30 minutes), at the end of which their writing sheets, notes, and quizzes were collected.

3.5.3.3 Interviews

In the first phase, eight students (four from the experimental group; four from the comparison group) took part individually in retrospective semi-structured interview prior to the writing instruction. Each interview was conducted in Chinese and was approximately 25 minutes in length. The interviews were audio recorded and transcribed. All participants had the right to refuse to answer any question or retract their answers at any time. After the interview, they were also asked to check their interview transcript, and they had the right to change or delete their responses. Appendix 4 presents the schemes and sample questions of this pre-retrospective semi-structured interview.

3.5.4 Data Analysis

For the questionnaire and interview data analysis, participants' answers from the open-ended questions and interviews were transcribed and analysed using content analysis and thematic analysis methods respectively (Creswell, 2014; Fraenkel, Wallen, & Hyun, 2011; Schreier, 2013). For the written textual data analysis, all textual data collected via writing tests were first cleaned and then analysed statistically.

3.5.4.1 Content Analysis for Open-Ended Questionnaire

Students' answers in the open-ended questionnaire were analysed with content analysis (CA) method. As argued by Schreier (2013), CA is a widely used quantified analysis of qualitative data. It can be divided into two types, including quantitative CA and qualitative CA. The former presents the findings as frequency counts and the later more often provides a detailed description of the meaning of the material under analysis (Flick, 2013). Therefore, both quantitative CA and qualitative CA contributed to an examination of changes in students' knowledge from the trend level as well as identifying any changes in students' knowledge from the content level.

A reliable knowledge coding system was developed for analyzing the open-ended questionnaire in the main study. Based on Scherier's (2013) steps for building the coding system, in this study I adopted the dual approach of concept-driven and data-driven to construct my coding system. That is, the initial formulation categories/subcategories and students' responses clusters were employed together in the design of the coding system. Firstly, initial subcategories were identified as "structure", "content", "linguistic", "process", "purpose", "reader awareness" according to previous theories, the pilot study coding system, and questions in the questionnaire. Secondly, students' responses to the open-ended questions were extracted and combined with cluster sampling into codes (Fraenkel, Wallen, & Hyun, 2011). In this manner, some codes with a similar meaning could be entered into the existent subcategories. Some new subcategories were obtained when some codes could not be sorted into previous subcategories. All subcategories were then put into one of the main categories. Finally, the coding system can be presented in the Excel form.

The frequencies about the appearance of each code and the substance of these codes were checked during the data analysis progress. Moreover, to increase the consistency and reliability of the content analysis, another coder, with expertise in second language writing, was invited to discuss the criterion of the codes, subcategories, and categories.

3.5.4.2 Thematic Analysis of Interviews

Information concerning EFL learners' knowledge in argumentation was also collected through individual semi-structured interviews with eight participants. All interviews were audio-recorded and then transcribed by the researcher. Every participant received a copy of their transcript which they had the opportunity to check. After that these transcripts were translated from Chinese into English for the sake of reporting in the results section. Thematic analysis (TA) was employed with a top-down and bottom-up dual approach for the qualitative data analysis in current research (Creswell, 2014). Firstly, three categories were constructed in the coding system based on the previous theoretical framework of genre knowledge, they are: "formal knowledge", "process knowledge", and "rhetorical knowledge". Secondly, students' responses of interview questions were extracted into subcategories, such as "reflections of their knowledge", "sources of their presented knowledge", "changes in knowledge", and "reasons of these changes", which were then placed into previous main categories. In coding the data, I shifted between the data and the coding system repeatedly. The coding systems of this semi-structured interview and previous questionnaire were compared as both instruments contributed to the exploration of participants' knowledge about argumentation. Two L2 writing experts, whose mother tongue is Chinese, were invited to appraise the coding scheme; their questions and suggestions contributed to the data analysis process.

3.5.4.3 Assessing the Surface Structure

Participants' argumentative written texts were assessed in terms of the structural level. The analysis rubric was constructed according to Toulmin's model (2003), including claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data (Ramage, Bean, & Johnson, 1998). The identification of these six elements was

first summarised based on indicator words, semantic structures, linguistic features, and prepositional phrases (Stapleton, 2001; Liu & Stapleton, 2014). For example, to identify claims, indicator words such as "I think…," "as far as I am concerned", "I support the suggestion of…" were used; "first of all," "because", "moreover", "furthermore", "finally", and "last but not the least," usually indicated a sequence of data; a counterargument often identified by "however, some people may argue against…" "however, others claim that…"; and "other people hold different views". "although," "even though" "despite", "It is said that… however/but…" indicated a rebuttal section. The detailed definitions and examples of these six elements extracted from students' text are presented in Appendix 7.

In the process of structural coding, I and a coder, who was an experienced college English teacher in China, first used the rubrics in Appendix 7 to do a structural analysis with ten scripts independently. We then compared our results and reviewed the coding rules. After clarifying our thoughts of the argumentative elements, we again independently coded twenty essays randomly selected from the written texts. At this stage, Cohen's Kappa was calculated to assure inter-rater reliability between these two coders, because Hayes and Harch (1999) stated that Cohen's Kappa could be used to assure the nominal scale agreement between coders in the rating and coding stage. The inter-rater reliabilities were .92 (claim), .90 (data), .98 (counterargument claim), .95 (counterargument data), .96 (rebuttal claim), and .98 (rebuttal data) respectively, and the overall Cohen's Kappa was .95. Secondly, because the semantic cues and indicator phrases (Appendix 7) may not be applied to all situations in the process of structural analysis., for example, students sometimes implied their viewpoint, discussion, and reasons without such transparent indicators, double coding was required to ensure the validity and reliability of the structural analysis. The two coders, thus, discussed their disagreements about their previous structural coding and summarised some coding rules (Appendix 8) to solve ambiguous issues in the coding. Finally, the researcher coded the remaining 88 argumentative written texts with these rules.

3.5.4.4 Assessing the Quality of Writing Substance

The substance of argumentative writing was measured according to a set of assessments about participants' reasoning forms in their written texts. The coding scheme of reasoning forms were based on previous studies by Means and Voss (1996), and Schwarz et al. (2003); the reasons was sorted into four categories: vague, makes sense, consequential, and abstract (Schwarz, Neuman, Gil, and Ilya, 2003). The definitions and examples of these categories are illustrated in Appendix 9.

To code participants' form of argumentative reasoning in their written texts, the following procedures were undertaken. First, one coder, a college English teacher, and I coded 20 scripts independently using the rubric of the definitions and examples of the four categories of reasons. We next compared the outcomes and discussed the coding standard of the forms of reasons. Then, with the modified coding rules, we independently analysed another 20 articles randomly selected from the data. The Cohen's Kappa between these two codes were .96 (vague), .96 (make sense), .94 (consequential), .98 (abstract), and the overall inter-rater score was .96. Afterwards, we discussed the disagreements and reached an agreement in the coding of the reasons. I, finally, completed the rest of the analysis.

3.5.4.5 Writing Scoring

A total of 134 argumentative written texts were obtained in the pre-intervention stage, sixteen of which were removed as explained in 3.5.1.1. The process of grading was conducted with several rounds, first, two experienced EFL college English teachers were invited to train as a scorer to use the argumentative writing rubric (Appendix 6). As Hamp-Lyons (1990) argued, the training improves raters' scoring reliability. Second, each rater was asked to assess 20 texts from the pilot study according to the scoring criteria; the two raters and I discussed their scoring scales to reach an agreement with the contradictory scores. The two raters, then, were invited to grade 20 randomly selected texts from the pre-instruction test, independently. The inter-rater reliability, coefficient alpha, was .88 before negotiation, indicating a satisfactory reliability. Finally,

they were asked to grade remaining writings independently. Students' final scores were the average of two raters.

3.5.4.6 Independent-Samples *t*-Tests

The independent-sample *t*-test was used to compare the means between two different groups on the same dependent variable. In this study, a group of independent *t*-tests were used to establish whether students in the high-proficiency group distinguished from the low writing proficiency students in their discourse moves and quality of reasons. The Independent Variable (IV) was high-and low-proficiency groups, and Dependent Variables (DV) were: 1) Discourse moves: claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data; 2) the quality of reasons: vague, make sense, consequential, and abstract; and 3) the overall writing scores.

3.6 Writing Instruction

This section describes the two writing instruction approaches: a genre-based writing course and a conventional content-model writing course for the experimental group students and the comparison group students respectively. For both groups the course was eight weeks and was presented during the same time.

3.6.1 Instruments

3.6.1.1 Conventional Writing Instruction

The conventional writing instruction focused on the textual level in two directions: mode and content respectively. That is, the traditional writing course employed a mode and content-based approach which taught the students textual formats of paragraphs and helped them understand the content of the texts. The writing teacher guided students to develop a series of templates in paragraphs and essays to help them to imitate model essays in argumentative English writing, and students expected to understand every element of language knowledge and the content of each sentence of the text. In addition, the students were asked a series of comprehension questions about the text to help them understand the argumentative writing.

The teaching content of the conventional writing course focused on the surface textual level; that is, language was used to learn textual rules and the content of argumentation. After the pedagogical input, students completed some exercises to assess their mastery of the textual forms and their comprehension of the model text. The conventional teaching approach of the comparison group is described further in Appendix 10.

3.6.1.2 Genre-Based Writing Instruction

The genre-based writing instruction differed from the conventional writing approach, which focused on the forms and content of the text, in that it helped students pay attention to the textual features of the texts as well as why, how it is produced and how it can be used in various contexts for different audiences and purposes.

The genre-based writing instruction was informed by SCT, that is, three main mechanisms, ZPD, mediation, and internalisation, were included in this instructional system, to facilitate students' knowledge of argumentation. Specifically, the genre-based approach recommended that instructors should focus on the distance between learners' current knowledge and the potential development of their knowledge of argumentation (ZPD). It also encouraged instructors to use teacher-led practices (mediation) to improve students' self-reflection ability about their knowledge of argumentation (internalisation). As shown in Table 3.5, genre-based writing instruction builds on two mains aspects, teacher-led textual modeling and teacher-guided genre knowledge analysis of exemplars. Some steps of the genre-based instruction were guided, specifically, by the following criteria: The first two steps worked on the explanations of the teacher-led textual modeling; the third step described the teacher-guided genre awareness/ knowledge analysis of exemplars.

In the initial stage, novice L2 learners require greater support from teachers in providing information about appropriate surface features of the genre. As Hyland (2003) argued, literacy development requires an explicit focus on the way texts are organised and the language choices that users make to achieve their purposes in a particular context. This explicit "linguistic" approach was popularly used in both SFL and ESP schools.

The second criterion is that instructors need to create contexts in which students and teachers can jointly negotiate to achieve the meaningful use of features in the genre. Martin and Rose (2008) suggested that teacher-led textual modeling can provide ESL and EFL writers with many opportunities to be involved in unfamiliar genres.

Table 3.5 Course stages procedures

Course stages
1. Argumentative Writing Introduction and Thesis Studying (week 1-2) - Sample analysis (argumentative essay): schematic structure; writing content; the relationship between reader and writer - Sample analysis (thesis): thesis section components and language choices for presenting the topic and grabbing attention; analysis of knowledge about the four elements with exemplars on the thesis section - Peer discussion: learners' group discussion of knowledge about the four elements (formal level, rhetorical level, process level, and subject level) in argumentative articles gathered by students themselves - Negotiated writing task: teacher-guided discussion about a writing task (the moves, linguistic features and other knowledge elements about thesis) - Practice tasks: students' thesis writing after class 2. Argument/Evaluate (week 3-4) - Sample analysis (argument): thesis section components and language choices for demonstrating, expounding, and proving; analysis of knowledge about the four elements with exemplars on the argument section - Peer discussion: leaners' group discussion of knowledge about the four elements in argumentative articles gathered by students themselves - Negotiated writing task: teacher guided discussion about a writing task (the moves, linguistic features and other genre knowledge about argument) - Practice tasks: students' individual argument writing after class 3. Conclusion (week 5) - Sample analysis (conclusion): thesis section components and language choices for consolidating, affirming and the extension of the context; analysis of knowledge about the four elements with exemplars on the conclusion section - Peer discussion: learners' group discussion of knowledge about the four elements in argumentative articles gathered by students themselves - Negotiated writing task: teacher-guided discussion about a writing task (the moves, linguistic features and other genre knowledge about conclusion) - Practice tasks: students' conclusion writing after class 4. Writing process and modification (week 6) - Interpretation of task requirement, writing construction and writing modification - The framework of sentences and paragraph: coherence and cohesion - Teach students to modify their writing with metacognitive strategies 5. Classroom-based writing workshop (week 7-8) - Students' group discussion about a new argumentative task (task requirement, moves, content, linguistic, process knowledge, and rhetorical knowledge) - Students' argumentative writing in the class; peer assessment - Teacher's scores and comments; teacher-leaded and group-based discussion about their writing

Thirdly, students need to be encouraged to analyse the exemplars with teacher-guided questions about genre awareness and knowledge such as formal knowledge, process knowledge, rhetoric awareness, and subject knowledge (Wette, 2017). Beaufort (2008) also suggested that "L2 writing instructors, in particular, need to encourage questioning of a task and critical reflection that arguments student's "mindfulness" or metacognition of the writing process" (p. 8). The writing instruction includes teacher designed questions about knowledge in different elements in argumentative genre to guide participants' analysis of exemplars and also stimulate them to reflect their previous knowledge about argumentation.

The characteristic of the genre-based writing instruction can be summarised as follow:

1. Focusing on the structure, language, and content in a genre;

2. Considering the appearance of this genre in their learning world;

3. Providing mindfulness of knowledge about various elements in the genre;

4. Providing support to students until they could engage in writing independently.

This intervention programme applied these genre-based writing practices in EFL writing settings with a focus on argumentative writing to foster Chinese EFL students' knowledge about argumentation and enhance their writing performance in argumentation. This research adopted an eight-week (16 hours) genre-based writing instruction with one-month teacher training to ensure the treatment fidelity. During the intervention, all participants in the experimental group were required to complete three assignments; the data from this three-writing assignment were not be used in this study.

3.6.1.3 Teacher Training

Teachers' understanding of teaching materials has an acknowledged effect on the quality of the intervention (Manchon, Roca de Larios, & Murphy, 2007). As Hyland (2007) claimed, genre-based training for L2 writing instructors enables them to develop their central role in preparing curriculum materials and activities for writing classes and, in turn, support students' genre engagement in the classroom. Therefore, a four-week

(three hours per week) teacher training was provided for the instructor in the experimental group before the intervention. In these workshops, I first introduced genre theories and the rationale of genre-based writing instruction, and then, the clarified the content of the genre-based writing course and teacher's role in this course. In the first workshop, I illustrated basic genre theories and genre approaches in L2 writing, and in the second workshop presented and discussed the nature of argumentative writing and the use of argumentative writing at the tertiary level English education in China. In the third workshop, I introduced the genre -based syllabus in argumentative writing which provides the writing teacher an opportunity to ask questions about this intervention. In the last workshop, I and the experimental instructor discussed the challenges, proposed the solutions, and adjusted the instructional procedures together.

3.6.2 Procedures

During the writing instruction period, all participants received an eight-week writing instruction (once a week for 2 hours) from 09/2016 to 11/2016. The teacher of the experimental group attended a four-week teaching training workshop before the intervention, but the teacher of the comparison group did not attend this training until the end of the data collection. Both groups had the same writing assignments during the writing course to guarantee the two groups' comparability. The comparison group students were also provided with the same genre-based writing course after the data collection so that they were not disadvantaged, as can happen sometimes for comparison group students. The argumentative writing instruction was sustained for about two months. Table 3.6 describes an overview of the writing course.

Table 3.6 An overview of the intervention

Groups	Participants	NO.	Instructor	Content	Course time
Experiment	Undergraduate non-English major (sophomore students)	68	EFL writing teachers (10 teaching years)	Genre-based writing course in argumentative writing	Once a week of 2 hours (8-week)
Comparison	Undergraduate non-English major (sophomore students)	69	EFL writing teachers (10 teaching years)	Mode and content-based writing course in argumentation writing	Once a week of 2 hours (8-week)

3.7 Post-Instruction

This section describes the procedures to assess the impact of the genre-based writing instruction on students' knowledge of argumentation and writing performance in argumentation (discourse move structure, writing substance, and overall writing quality) in contrast to the comparison group who had conventional writing instruction.

3.7.2 Instruments

3.7.1.1 Argumentative Writing Test

This post-instruction writing test was used to investigate how the two writing courses impacted students' discourse moves, writing substance, and writing performance in argumentation. The two writing prompts from the pre-instruction test were also used in the post-instruction test. Participants who had written an essay with prompt A at Time 1 would do their writing with prompt B at Time 2, and vice versa. Appendix 3 shows these two prompts for the argumentative writing test. The numbers of samples of written data collected between the pre- and post-test in differed in both groups. Table 3.7 clearly showed these changes.

Table 3.7 The number changes

Group	Pre-test	Post-test
Experimental group	70	66
Comparison group	72	68

3.7.1.2 Post-instruction Questionnaire

The post-instruction questionnaire was used to investigate students' argumentative genre knowledge again after the writing instruction. The questions in this post-instruction questionnaire, except for the personal questions, were the same as in the pre-instruction questionnaire and investigated students' formal knowledge, process knowledge, and rhetorical knowledge in argumentation again. These questions had been modified and validated in the pilot study. Appendix 2 presents the content of post-instruction questionnaire.

3.7.1.3 Semi-Structured Interviews after the Instruction

In the post-instruction phase, I interviewed the eight participants, who had been interviewed in the pre-instruction phase, after their post-instruction writing test and post-instruction questionnaire. The questions in this interview concerned learners' perceived changes of their knowledge of argumentation, including formal knowledge, process knowledge, and rhetorical knowledge as well as their attitudes about the writing instruction. The interview questions in the post-instruction phase are in Appendix 5.

3.7.2 Procedures

After their writing instruction participants, in both groups, were invited to undertake the same assessment of their knowledge and writing performance in argumentation; this included a post-instruction writing test (65 minutes) and a genre knowledge questionnaire (20 minutes). Eight participants in the pre-instruction phase were invited to complete the post-instruction interview. As before the participants were informed of their rights to withdraw from the study at any time during or after this stage.

3.7.3 Data Analysis

Similar to the data analysis procedure in the pre-instruction phase, participants' answers both from the open-ended questions and interviews were transcribed and coded using content analysis and thematic analysis (see 3.5.4.1; 3.5.4.2). Furthermore, all written texts collected from the post-instruction writing test were first cleaned, coded (see 3.5.4.3; 3.5.4.4; 3.5.4.5) and then analysed with paired samples *t*-test, ANCOVA, and ANOVA.

3.7.3.1 Paired Samples *t*-Test

Dependent variables' normal distribution and bivariate scatterplots were examined first. The results indicated that the assumptions for the bivariate analysis were met. A series of paired-samples *t*-tests were then applied to investigate changes of dependent variables within the same group between the pre- and post-test. The Cohen's (*d*) was provided as the effect sizes (small=0.2; medium=0.5; large=0.8) (Cohen, 2013).

3.7.3.2 Analysis of Covariance (ANCOVA)

Analysis of covariance tests the differences between groups with the control of the variable. Particularly, the "covariate" is considered as a controlling variable (Larson-Hall, 2010 p. 143). ANCOVA is used to appraise whether the means of the dependent variable (DV) are differently influenced by the independent variable (IV) with a controlling variable, known as covariates (Coakes & Steed, 2009). The covariate can be used for reducing the within-group error variance (Field, 2009).

In this research, ANCOVA was applied to compare the differences of participants' discourse moves and reasoning qualities in argumentative writing between the experimental and comparison groups in the post-test, controlling the capability of their discourse moves and reasoning qualities in the pre-test as the covariate. The effect of the genre-based instruction on students' discourse moves (claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data) and reasoning qualities (vague, make sense, consequential, abstract) was assessed with ANCOVA. The IVs were different writing instructions, and DVs included students' discourse move

structures and reasoning qualities in the argumentative writing at the post-test. The partial eta square (η2) was reported as the magnitude of effect sizes (small=.01; medium=.06; large=.14) (Cohen, 2013).

3.7.3.3 Repeated-Measures ANOVA

The repeated-measures ANOVA aims to test the difference between several means within same participants (more than one conditions) at more than one time, which is also called a "mixed between-within ANOVA" (Larson-Hall, 2010, p. 143). In this research, a series of repeated-measures ANOVA with one within-subject variables factor (pre-test and post-test); and four between-subject factors: two proficiency levels in two groups (experimental high-proficiency, experimental low-proficiency, compared high-proficiency, and correlated low-proficiency) were assessed.

In this research, these repeated-measures ANOVAs were conducted to determine whether there were statistically significant differences between these four groups in the pre- and post-instruction writing tests of participants' discourse moves, reasoning qualities, and writing scores. The F-ratio and omega squared values were reported as the overall effect size (Field, 2013). The assumptions of normality and homogeneity of variances were first explored, and all examinations indicated that the assumptions for the repeated-measures ANOVA were met.

3.8 Ethical Considerations

This study acquired ethical approval from the Human Participants Ethics Committee at the University of Auckland in June 2016 (reference number 017467). All data were collected from a selected university in China, and the ethical considerations will be extrapolated in the following sections.

3.8.1 Informed Consent

The Participant Information Sheet (PIS) and Consent Form (CF) were sent sequentially to the Dean, teachers, and students of the selected university. The researcher first contacted the Dean in one college by email with both Chinese and English versions of

PIS and CF. The purpose, requirement, procedural times, and other information were described in these forms (PIS and CF). After obtaining the permission from the Dean, I the researcher contacted and recruited teachers and students separately. In their faculty meeting, a presentation about this study was given to all staff to invite English writing teachers to participant in this research. To recruit students, complex information about the research was disseminated by English teachers in their college English course. Students obtained the PIS and CF forms from their teachers and returned the CF file to a box in the faculty office. The forms of PIS and CF for Dean, teachers, and students are in Appendix 11.

3.8.2 Anonymity and Confidentiality

Participants' anonymity was preserved in data collection, data analysis, and results reports. In the data collection stage, students' writing and questionnaire were identified with pseudonyms. During data analysis, each student was given a number and an index was designed to link their information. In the findings' presentation section, pseudonyms for the university, teachers, and students are used to avoid the potential risk of identification. For the confidentiality of the record, students' writings, questionnaires, interview tapes, and transcripts were kept secretly in a locked cabinet. Participants' were assured that the collected data in this research would not be disclosed to any other institutional or evolutional organisations and individuals.

3.8.3 Right to Withdraw

All participants were informed that they have the right to withdraw their data. Firstly, they had the rights to pull out or withdraw any data at any time before 12 December 2016 without any notification. Secondly, they had the right to refuse to answer any question in the writing tests, questionnaires, and interviews, and could ask to turn off the recorder any time during the interview. Finally, they would not be blamed if they miss any course-work because of this research. Furthermore, their participation or non-participation in the process would not affect their relationship with the teaching staff, other courses of study, and the school authorities.

3.9 Summary

This chapter presented three major aspect of my research: the research paradigm I followed, the research design I adopted, and the ethical issues in relation to this study. Pragmatism is the philosophical worldview adopted in this research as EFL is still an outlier in the L2 writing field. Pragmatism allows for the means, solutions, and applications, which are used in the ESL setting, to be used to inform the EFL context. A mixed-methods design is appropriate for my study because it allows the use of complementary methods to pursue complex problems. The quasi-experimental design is suitable for this writing development research because it is concerned with the two groups' different behaviors after the differing writing instruction, and it allows for probing of the changes and the reasons for changes. The final sections describe my research design, including the instruments, the procedures, and data analysis processes of the main study. The three major ethical considerations are presented at last.

In the following three chapters, findings based on the analysis of data collected through writing tests, open-ended questionnaires, and interviews are presented. Chapter Four reports students' development in knowledge of argumentation after the different writing instructions; Chapter Five presents students' changes in argumentative writing performance after different writing instructions; Chapter Six identifies students' changes of their knowledge in argumentation which may mediate their writing.

CHAPTER FOUR

AN ANALYSIS OF STUDENTS' CHANGES IN KNOWLEDGE IN ARGUMENTATION

4.1 Overview

The following three chapters present the findings of the study by reporting the impact of writing instruction on undergraduate students' knowledge changes and writing performance in argumentation. In this chapter, changes in students' knowledge about different elements in argumentation are described. The subsequent chapter reports their writing performance (discourse move structure, writing substance, and overall writing quality) in argumentation. Chapter Six describes the characteristics of the development about students' knowledge in argumentation and presents an analysis of the development of students' knowledge that may mediate their writing.

There are three purposes of this chapter in reporting the findings from the analysis of Chinese EFL sophomores' knowledge of argumentation from Time 1 to 2. First, it reports the respective changes of the experimental and comparison group students; second, it compares the differing changes in knowledge between the experimental group and comparison group who had different writing instructions; and third it reports differences between the students with high or low writing proficiency in writing in their acquired knowledge of argumentation after different writing instructions.

4.2 Changes in Students' Knowledge about Elements in Argumentation: Experimental vs. Comparison Groups

Experimental and comparison group students' knowledge changes in argumentation will be presented separately. The findings of knowledge changes in each group will be divided into three categories: Formal knowledge, process knowledge, and rhetorical

knowledge (Tardy, 2009). The formal knowledge will be described first, and the process and rhetorical knowledge will be presented together subsequently.

4.2.1 Experimental Group

Experimental group students' formal knowledge was further divided into three dimensions: Structural knowledge, content knowledge, and language knowledge. The structure knowledge refers to the structural moves that are common to the argumentative genre. The content knowledge pursues the content in an argumentative domain, such as the background or topic information in completing an argumentative writing task. Language knowledge is used here to explore participants' lexico-grammatical conventions of the argumentative genre. The rhetorical and process knowledge were remained as single categories. Rhetorical knowledge in this study refers to participants' understanding of an argumentative conscious purpose in a local context, a sophisticated awareness of audiences' beliefs, and the awareness of situated variables in different social contexts in argumentation. Process knowledge refers to all the composing processes in achieving the planned action of an argumentative writing task. The changes in students' knowledge about each element in argumentation will be presented from three perspectives: 1) Quantitative changes between pre- and post- instruction questionnaires; 2) substance changes with the comparison between pre- and post-instruction questionnaires; and 3) students' reflective comments about their knowledge between pre- and post-instruction interviews. The quantitative changes will be presented first, followed by the presentation of substance changes and reflective comments.

4.2.1.1 Formal Knowledge

Quantity

Experimental group students' answers to the questionnaires between pre- and post-instruction tests were compared to evaluate how their knowledge about the formal element in argumentation had developed. These data are presented in percentage, because it can be clearly seen the trend of the changes. Figure 4.1, which presents the subcategories of students' formal knowledge pre- and post-instruction shows that, in

general, there were differences in students' formal knowledge in argumentation between Times 1 and 2. Students' post-instruction formal knowledge was more complex after the genre-based instruction, as there were two more sub-categories in students' structural knowledge at Time 2 than at Time 1. The other two dimensions, content knowledge and language knowledge, showed change in each sub-category.
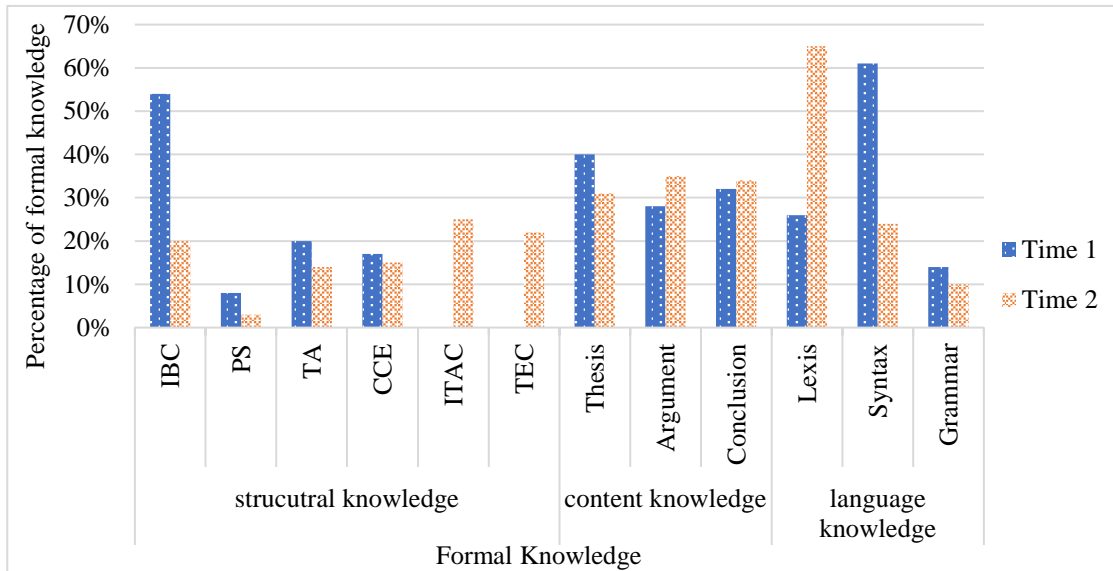
Figure 4.1 Changes in formal knowledge at Times 1 and 2 of the experimental group
Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim-Counterargument Claim-Evaluation; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion.

Experimental group students displayed changes in their formal knowledge, especially in sub-categories of "structure knowledge" and "language knowledge", whereas students' "content knowledge" showed less change.

As shown in Figure 4.1, there was little evidence of knowledge change greater than 10 percent in content after the writing instruction. For example, the percentage of "argument" raised from 28% to 35% after the genre-based instruction, followed by the "conclusion", which showed a smaller increase from 32% to 34%. The comments on "thesis" decreased from 40% at Time 1 to 31% at Time 2.

However, in the structural knowledge dimension, the biggest decrease appeared in students' choice of "introduction-body-conclusion" (IBC), which showed a sharp

decrease from 54% to 20%. The sub-categories, "problem-solution" (PS), "thesis-argument" (TA), and "claim-counterargument claim-evaluation" (CCE) presented a modest decrease at Time 2. After the writing intervention, Time 2, 25% and 22% of the comments were on "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis-evaluation-conclusion" (TEC), respectively, in the experimental group.

In the language knowledge dimension, "lexis" showed a greater focus at Time 2 in the experimental group, and it increased from 26% to 65%, while the sub-category of "syntax" showed a decrease from 61% to 24%. There was little change in "grammar" after the writing intervention with a reduction of only 4%.

Overall, at the formal level, students' content knowledge showed less change than the other two subcategories - structure and language knowledge. The following section presents substance changes in structure, language, and content elements, based on the qualitative content analysis of students' responses in the questionnaires.

Substance

After the description about the changes in students' knowledge from the numeric level, their development of the knowledge as well as identifying from the content level. The qualitative content analysis of the codes about students' formal knowledge, at Time 1, indicated that Chinese EFL students generally had poor understanding of argumentation with vague descriptions about their knowledge. At Time 2, after the genre-based writing course there was evidence of progress with more consideration of specific genre.

At the structural level, more students from the experimental group identified structural features in a specific context at Time 2 than at Time 1. The increased in sub-categories, "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis-evaluation-conclusion" (TEC), indicated more identifications of argument, counterargument, and evaluation, which referred to the generic meaning of argumentation. In addition, the substantially decreased sub-category "introduction-body-conclusion" (IBC) was identified as a general structural description, which suggested a lack of specific understanding of the genre.

The experimental group students provided greater details about the function of arguing in the language knowledge dimension at Time 2 than at Time 1. In the pre-instruction phase, students' lexis knowledge concentrated on "advanced vocabulary" and "linking words", without any consideration of the context of argumentation, while at Time 2, students used more specific words, such as "reporting verbs", "words of praise and critique", and "words of evaluation". In addition, students referred to "syntax" only from the grammatical perspective, such as "subordinate clause" and "complex sentence" at Time 1; at Time 2, fewer students explained their language use with these codes. Overall, experimental group students appeared to have become more familiar with the lexical and grammatical knowledge in argumentation after the genre-based writing course.

In the content knowledge dimension, although there was little change in the percentage of codes in "thesis", "argument", and "conclusion" identified in the experimental group, the substance of the descriptions in "argument" at Time 2 was more meaningful than at Time 1. An indicator of content knowledge development at the substance level is that, whereas almost all students who responded to the question on argument content at Time 1 with only general comments, such as "contrast different arguments" and "prove my viewpoint with examples", at Time 2, a few students in the experimental group explained their "argument" content as "citing accurate data", "the readable reasons", and "critique authorities". In other words, a small number of experimental group students demonstrated their understanding of argument content by highlighting the purpose of the argumentative writing and the relationship between content and reader.

Students' Reflective Comments

This section presents the students' reflections on the changes in their knowledge about different elements in argumentation and their attitudes to the writing instructions. It is based on the two interviews with the four participants before and after the writing instruction. The reflective thinking is identified as a special form of thinking with active chaining, in which learners carefully order and link ideas between the new knowledge

and the predecessors (Hatton & Smith, 1995). In other words, it is recognised as a cognitive process that contains a sequence of interrelated knowledge and beliefs. In this research, students' reflection refers to their rethinking of the solutions to the challenges they faced, their needs for development, and the characteristics of a high-quality genre model.

The four volunteers from the experimental group (Hong, Lan, Bai, and Lily) took part in two interviews. There were similarities in their reflections about knowledge in the formal element concerning three aspects: 1) Content and nature of their previous knowledge; 2) purpose, content, and features of knowledge after the intervention; and 3) their attitudes about writing instruction.

Firstly, results of students' reflections about their prior formal knowledge in argumentation are presented. Three of the four students talked about their previous formal knowledge in terms of the structure level, language level, and content level in their interviews. All four considered that their pre-instruction formal knowledge of argumentation was vague and limited. Hong commented negatively on her previous knowledge of structure in argumentation. She realised that, before the genre-based writing course, she gave vague descriptions about the writing moves in argumentation, saying:

I used the three-stage template (IBC) before as I was familiar with it, and it seemed timesaving for me. However, after the model analysis in this writing course, I recognised that the IBC model was too general. (Hong, Interview at Time 2)

Lan had a negative attitude towards his previous knowledge about the content element in argumentation. His examples of personal ideas and stories demonstrated his increased content knowledge about argumentation within the genre-based writing course.

Before taking this writing course, my concerns about argumentative writing were my ideas and examples in my personal experience. However, some classroom activities let me know that they were too limited to persuade. (Lan, Interview at Time 2)

Bai described his previous language knowledge of argumentation as "poor" and "very hard to express", and that he did not have confidence in his language use in argumentation at Time 1.

I was quite sure that my language knowledge about arguing is poor, actually, it was very hard for me to find accurate words to express my argument. (Bai, Interview at Time 1)

Secondly, data on participants' reflections about their changed perceptions of formal knowledge in argumentation are presented. Three participants, in their interviews, compared their knowledge about the structure, language, and content elements in argumentation before and after the writing course. Three of them considered that they have become more familiar with formal knowledge in a specific genre, argumentation, after the genre-based writing course.

The teacher-led textual modeling in the genre-based writing course was described by Lily as having "expanded my understanding". She compared her knowledge about the structural element in argumentation before and after the writing intervention, stating that she had "little understanding of the form" and "general" knowledge about discourse moves at Time 1. She attributed her increased structure knowledge on "teacher's guidance of constructing a writing model".

I must admit that before this writing course I had little understanding of the form of argumentation beyond the three main moves (introduction, body, conclusion). However, the teacher's guidance of constructing a writing model in argumentation expanded my understanding of the structure in argumentation. The counterargument and evaluation are needed to ensure a specific purpose rather than general narration. (Lily, Interview at Time 2)

In explaining her changes in knowledge about language element in argumentation within the genre-based writing course, Hong described her language knowledge in argumentation, initially as only at a linguistic level. After the writing intervention, she

began to talk of the language as "arguing, persuading, evaluating, and discussing" aims. In the interview, Hong responded that:

Before this writing course, I was quite sure that the complex sentence and correct grammar usage would help me to have a high score in argumentation writing. However, the teacher helped us build a writing model in argumentation with various language use of arguing, persuading, evaluating, and discussing. I gradually understand that I have to use words accurately in praising, criticizing, arguing and evaluating in my writing. (Hong, Interview at Time 2)

Lan's explanations about the changes in content knowledge about argumentation indicated that he was sensitive to the argumentative context after the writing course. His knowledge of content at Time 2 indicated an awareness the argumentative genre, such as "effective evidence to prove my claim", "the accuracy of data", and "make my reasons readable". He said:

Before taking this writing course, my concerns about argumentative writing were my ideas and examples of my personal experience. However, the practices in argumentation made me know that they were not enough to persuade. Actually, it is very hard for me to find more effective evidence to prove my claim. But I know that I should think about the accuracy of data and how to make my reasons readable. (Lan, Interview at Time 2)

Thirdly, students said they thought the writing instruction was highly effective in developing their formal knowledge. Two students commented on the practicability of the new understanding of formal knowledge in argumentation following their adoption of teacher-guided questions about different knowledge elements through analysing the exemplars.

In the interview, at time 2, Lily mentioned the positive contribution of teacher-guided questions. She stated that her knowledge development depends on this type of writing practice, and she would be more willing to write after this intervention. Although she had heard that in writing she could organise ideas from "different angles", such as

"evaluation, argument, counterargument", the writing practice activated her application of these ideas.

The counterargument, evaluation give me more ideas in my writing. That is, I can write more words in my writing. Actually, I knew these different angles (evaluation, argument, counterargument) before this writing course, but I cannot express myself deeply in English. The teachers-led questions in analysing the exemplars about the structures, language, and reader's needs in argumentation inspired me to write more. (Lily, Interview at Time 2)

The teacher-guided questions for analysing exemplars were considered as useful writing practice, which Bai said could help them use language to express themselves appropriately. He said:

The writing teacher led us to analyse some exemplars in distinguishing various language use of arguing, persuading, evaluating, and discussing in argumentation with various questions. She asked us analyse language expressions in different contexts of arguing. They were very useful. I could express myself easily with appropriate language. (Bai, Interview at Time 2)

In summary, experimental students' thinking about structure, language, and content in argumentation was influenced by the genre-based writing instruction. They showed a greater explicit knowledge of the structure and language use in argumentation. These students spoke highly of the genre-based writing instruction, and began to think about how language, structure, and content contributed to particular rhetorical purposes.

4.2.1.2 Process and Rhetorical Knowledge

Quantity

Experimental group students' knowledge of the process and rhetoric categories showed a smaller change than their formal knowledge of argumentation after the genre-based writing course. Whereas there were two more sub-categories in students' formal knowledge at Time 2 than Time 1, with the process and rhetorical knowledge only

showed a change in each sub-category. Figure 4.2 compares experimental group students' comments in their process and rhetorical knowledge at Times 1 and 2.

Experimental group students made similar changes of their knowledge of both process and rhetorical levels. Particularly, one sub-category in each dimension showed a bigger change, and the other two showed relatively little development after the intervention.

As shown in Figure 4.2, there were three sub-categories of students' process knowledge, gathering, evaluating, and classifying, which were identified by experimental group students at both Time 1 and 2. The "evaluating" made a greater increase than the other two subcategories from 31% to 43% at Time 2. Moreover, it was identified as the most popular used process knowledge by the experimental group students at Time 2, while the largest code at Time 1 was "classifying" (36%). There was a decrease in the code of "gathering" (33% to 15%) and a modest increase in the code of "classifying" (36% to 42%) from Time 1 to 2.
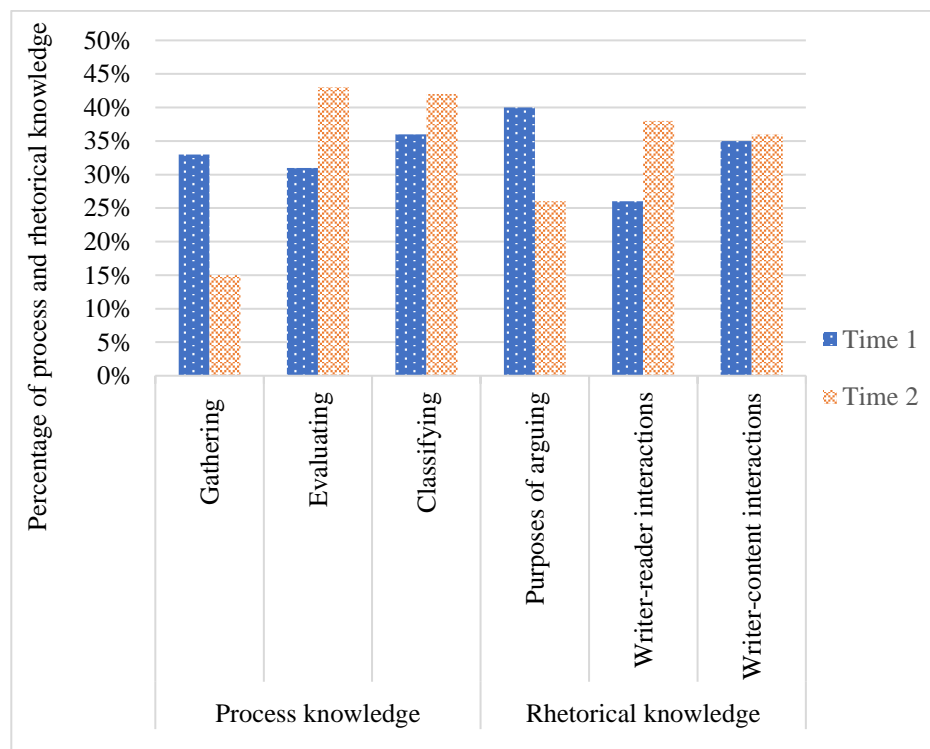
Figure 4.2 Changes in process knowledge and rhetorical knowledge at Times 1 and 2 of the experimental group

In the rhetorical knowledge dimension, analysis of Figure 4.2 shows that the sub-category of "writer-reader interactions" was the lowest at Time 1 (26%) but had the greatest gain (38%) after the writing intervention. In contrast, the sub-category of "purposes of arguing" for the experimental group had the highest score (40%) at Time 1 but decreased sharply (26%) after the genre-based writing course. There was little change in "writer-content interactions" from Time 1 to Time 2.

Substance

Qualitative content analysis of these codes about process knowledge and rhetorical knowledge indicated that EFL students in the intervention group showed improvement in these two elements after the writing instruction. Their knowledge of process element changed from a simple to more complex view between Times 1 and 2. At the rhetorical level, they appeared to have a deeper understanding of the purpose of, and audience for, argumentative writing at Time 2.

In the process dimension, as mentioned in the quantitative comparison, the code "evaluating" made a greater increase than the other two codes "classifying" and "gathering". The code of "evaluating" is a complex composing process, which includes understanding, summarising, gathering, as well as evaluating, while the codes of "classifying" and "gathering" are simpler composing processes, including only group their argumentative reasons.

The qualitative content analysis of experimental group students' rhetorical knowledge suggests that they had greater consideration of their reader, and the context of the argumentation, after the writing instruction. For example, the subcategory of "writer-reader interactions" included more critical analysis of their audience at Time 2. That is, students' "writer-reader interactions" comments progressed from "let the reader know my viewpoint", "let the reader assert my position", and "strengthen the persuasion" to "identify readers' possible claim" and "find out your readers' weakness". The subcategory of "purposes of arguing" focused more on "my viewpoint", "my writing level", "Chinese education cultural", "my experience", and "the topic" at Time 1, while at Time 2 it included a greater focus on their reader, such as "persuade the reader" and

"the correctness of statements". Furthermore, for the code of "writer-content interactions", students' voices suggested a deeper level of understanding of the features of argumentation after the writing teaching. Participants' descriptions about their writing content in argumentation implied greater rhetorical awareness after the writing intervention at Time 2. For example, their comments changed from "unify examples with my viewpoint", "let the readers know my viewpoint", and "being accurate and using word and grammar efficiently" to "work on the understandability of reasons", "address the reliability of the examples", and "how to make objective examples".

Students' Reflective Comments

Four volunteers from the experimental group (Hong, Lan, Bai, and Lily) took part in two interviews. In their reflections about their knowledge of the process and rhetorical elements, there were some similarities among them which can be summarised into three aspects: 1) Content and nature of their previous knowledge; 2) purpose, content, and features of knowledge after the intervention; and 3) their attitudes about writing instruction.

Students' reflections about their prior knowledge of process and rhetorical in argumentation are presented first. In their interview at Time 1, two students declared that their pre-instruction knowledge about the process and rhetorical elements of argumentation were limited and confused. They identified their writing process as organisation of language and considered the argumentative purpose as elaboration of personal ideas.

Lan evaluated her previous knowledge in process elements as "insufficient"., and that she was not satisfied with her lack of process knowledge at Time 1.

I have not considered the writing process consciously before this course. Actually, I always organised my ideas when I saw the prompt. This kind of idea organization is insufficient to satisfy my writing. (Lan, Interview at Time 1 and 2)

Hong reported a negative attitude towards her previous knowledge about the rhetorical element in argumentation. His comments that he "only expressed my ideas

about this topic" and "never paid attention to the argument or the reader" were considered as a limited view of argumentative writing, and suggests that Lan thought his rhetoric awareness in argumentation had increased, saying:

Before this writing course, I have never paid attention to the argument or the reader of my writing, I only expressed my ideas about this topic. This one-sided expression is insufficient in the argumentation. (Hong, Interview at Time 2)

Secondly, participants' reflections of their changed perceptions about the process and rhetorical knowledge in argumentation are presented. Two participants, in their interviews, compared their knowledge about the writing process and readers' needs in argumentation before and after the writing course. Two of them considered that they have become more familiar with the process and rhetorical knowledge in a specific genre of argumentation after the teacher-led textual modeling in the genre-based writing course.

Lily explained her changes in knowledge about process element in argumentation with the writing practice of teacher-led "writing model" construction. Whereas in the initial stage, she described the process with only one procedure- "find a couple of examples", after the writing intervention, she began to record a complex series of steps. In the interview at Time 2, Lily explained that:

Before this writing course, I have not considered the writing process consciously, and I just found a couple of examples to support my claim. While the writing practices helped me to establish my writing model in composing the writing with some procedures: read and understood the prompt, summarised the basic arguments in the reading, classified and gathered resources, and evaluated these things from argument and counterargument viewpoints. (Lily, Interview at Time 2)

Rose's explanations about the changes in rhetorical knowledge about argumentation indicated that she was more sensitive to the argumentative genre after the teacher-guided "writing model" construction. While she was not satisfied with her

ignorance of the audience in her writing before the instruction, after the teacher-led practice, she was more considerate of her readers saying that:

After the teacher's guidance of constructing my own writing model, it taught me that the consideration of readers' needs is important for English argumentative writing, although I have never paid attention before. After the examples during the class, the use of convincing evidence to persuade someone is needed. I should think about what they already thought. (Rose, Interview at Time 2)

Thirdly, students commented positively on the effect of genre-based writing instruction on development of their knowledge about the process and rhetorical elements. Two students commented on the practicality of the newly acquired knowledge of process and rhetoric in argumentation from the teacher-guided questions about different knowledge elements when analysing the exemplars.

In the interview at Time 2, Lily mentioned the positive contribution of teacher-guided questions about the various knowledge elements. She stated that her development of knowledge about the process element depended on this kind of writing practice, and that she had more confidence in writing after this intervention.

Teachers' questions about structure, language, and rhetoric knowledge in analysing the exemplars were very helpful. After this guidance, I composed my writing with these procedures (i.e. summarisation, classification, gathering, and evaluation), and I found that it gave me more ideas in my writing. (Lily, Interview at Time 2)

Bai described the writing practice with teacher-guided questions on various knowledge elements as "helpful". This kind of intervention helped him collect "more information" in writing because thinking about the potential ideas from the audience would improve Bai's thinking ability, saying that:

Teacher's questions about textual features, arguing aims, and readers' perspectives in the textual analysis section were helpful for me. Because the thinking of the audience's potential ideas gave me a chance to think deeply about argumentation and helped me collect more information in my writing. (Bai, Interview at Time 2)

In summary, these students' reflections on their awareness of process knowledge and rhetoric knowledge in argumentation was influenced by the genre-based writing instruction. Their comments also reflects different stages in their genre writing; before the writing course, they had described argumentative writing simply and in general terms, while after the intervention they talked about adapting knowledge according to aims of the argument. The excerpts show that students thought the genre-based instruction had a satisfying effect on their learning, and that this approach of teaching writing appears to enhance students' enthusiasm for argumentative writing.

4.2.2 Comparison Group

The comparison group students' argumentative knowledge reporting is similar to the experimental group. Formal knowledge was divided into three dimensions: structural knowledge, content knowledge, and language knowledge. The rhetorical and process knowledge remained as single categories. Changes in students' knowledge for each dimension will be given into three perspectives: 1) Quantitative changes between pre- and post-instruction questionnaire in knowledge of argumentation for the comparison group; 2) changes in the substance of knowledge of argumentation with comparison between pre- and post-instruction questionnaire; 3) students' reflective comments from the pre- and post- instruction interview. The quantitative data is presented first in Figures 4.3 and 4.4, followed by the presentation of change knowledge of substance and students' reflective comments.

4.2.2.1 Formal Knowledge

Quantity

In the structural dimension, two new sub-categories "ITAC" and "TEC" emerged at Time 2 as reported for the experimental group. The other two dimensions, content knowledge, and language knowledge, showed little change in each sub-category after their conventional writing course. Figure 4.3 compares the comparison group students' comments in their formal knowledge of augmentation at Times 1 and 2.

Comparison group students' formal knowledge made a greater change in the subcategories of "language knowledge" rather than the other two subcategories - "structural knowledge" and "content knowledge".
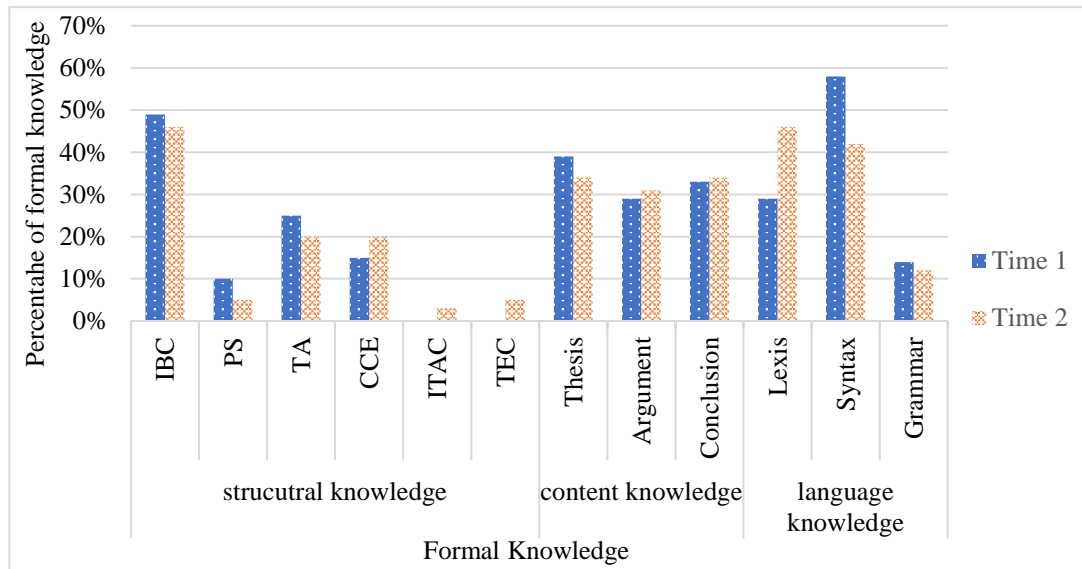
Figure 4.3 Changes in formal knowledge at Times 1 and 2 of the comparison group
Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim-Counterargument Claim-Evaluation; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion.

As shown in Figure 4.3, comparison group students showed the greatest change after the conventional writing course in their language knowledge than in structural and content knowledge of argumentation, with the greatest increase in "lexis" from 29% to 46% between Time 1 and Time 2. The sub-category of "syntax" showed a decrease from 58% to 42%; there was little change in "grammar" with a reduction of only 2%.

In the structural dimension, students' choice of "introduction-body-conclusion" (IBC) showed a slight decrease from 49% to 46% in comparison group from Time 1 to Time 2. The subcategories of "problem-solution" (PS) and "thesis-argument" (TA) similarly decreased 5%. Comparison group students, however, made modest increases in their reference to "claim-counterargument claim-evaluation" (CCE), "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis-evaluation-conclusion" (TEC) in their description of argumentative structure. Specifically, the CCE

increased from 15% to 20%, the ITAC increased from 0% to 3% and TEC increased from 0% to 5%.

In the dimension of content knowledge, comparison group students showed little change in all three subcategories from Time 1 to Time 2. The "argument" increased from 29% to 31%, followed by the "conclusion", from 33% to 34%. Comments on "thesis", however, decreased from 39% to 34% at Time 2.

Substance

The further content analysis of these codes in students' formal knowledge indicated that EFL students generally had poor knowledge of argumentation with vague descriptions at Time 1; a small number of students developed to show greater awareness of the argumentative genre at Time 2.

A small proportion of the comparison students demonstrated little change in the knowledge of the structural element of argumentation at Time 2; that is, most students in the comparison group were consistent in their identification of their structural knowledge of argumentation in general terms, such as "introduction-body-conclusion" (IBC) and "thesis-argument" (TA), which suggested a lack of understanding of the genre. They showed more awareness of the sub-categories "claim-counterargument claim-evaluation" (CCE), "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis-evaluation-conclusion" (TEC), after the conventional writing course.

At the language knowledge level, it appeared that comparison group students focused more on the knowledge about the practical application of words in writing at Time 2 than Time 1; there was no evidence, however, that they were familiar with the use of lexis in argumentation after the conventional writing course. At Time 1, comparison group students' lexical knowledge was restricted to vague statements, such as "advanced vocabulary" and "linking words", which did not consider the specific purpose of the writing; while, at Time 2, their lexical knowledge concentrated more on the writing goals, such as "reporting verbs", "attitude labels", and "conjunctions", that is the practical use of language, there was no evidence that they were familiar with

specific language use in the argumentative context. For the analysis of the substance of "syntax", it appeared that participants did not change after the conventional writing course, the reference to "subordinate clause" and "complex sentence" occured at both Times 1 and 2.

In the content knowledge dimension, there was little change in codes of "thesis", "argument", and "conclusion" for the comparison group; similarly, descriptions of substance of "argument" barely changed at Time 2. At Time 1, most participants responded to the question on argument content as "contrast different arguments" and "prove my viewpoint with examples"; at Time 2, the only additional comment about "argument" was "critique authorities". In summary, there was no evidence of any distinct change of their content knowledge by the comparison group at Time 2 after the traditional writing course.

Students' Reflective Comments

This section describes students' reflections on the changes in their knowledge about different elements in argumentation and their attitudes to the conventional writing instruction. It is based on the two interviews of four comparison participants' (Bella, Jean, Huang, Yun) before and after the conventional writing instructions. Generally, the comparison group students' reflective comments on argumentation are less than the experimental group students' comments, although reflections about the knowledge of the formal element had some similarities with them. This is summarised in three aspects: 1) Content and nature of their previous knowledge; 2) purpose, content, and features of knowledge after the intervention; and 3) their attitudes about writing instruction.

Firstly, only one participant evaluated her previous knowledge of the formal element of argumentation from the language aspect. Bella commented negatively about her previous knowledge of the language elements, such the recitations of 'formulaic sentences' and 'complicated grammar features', saying that:

I recited a variety of complex expressions of formulaic sentences, and I tried to use them in my writing for high writing scores but now I have changed my mind. In my

opinion, advanced lexis and complicated grammar features are not enough for me to write. (Bella, Interview at Time 2)

Secondly, data on comparison group participants' reflections about their changed perceptions in knowledge about the formal element in argumentation are presented. In comparing her language knowledge in argumentation before and after the conventional writing course, one participant, described her language knowledge in argumentation from the linguistic level in the initial stage, as "complex sentences" and "advanced words". After the writing instruction, she began to concentrate on the logic of sentence. In the interview, Jean expressed that:

Before this writing course, I thought complex sentences and advanced words were the keys to a high writing score but now I have changed my mind. In my opinion, the logic between sentences is more important than advanced lexis and complicated grammar features. (Jean, Interview at Time 2)

Thirdly, two participants in the comparison group, Huang and Bella, thought that the conventional writing teaching was not effective in developing their formal knowledge, such as language elements and structural elements; Regarding, Huang described the limited contribution of the conventional writing course to the development of language knowledge in argumentation. He stated that he was frustrated by the failure to find effective words to express himself in argumentative writing. He reported his negative feelings after conventional writing instruction:

Language use remains troubled for me after the writing course. I always use the translation method in my argumentative writing, but my English proficiency is very low, and I do not know how to express my ideas. (Huang, Interview at Time 2)

In the interview, Bella also mentioned the limited contribution of the writing course on her growth of structural knowledge in argumentation. She expressed her disappointment that:

I still do not know how to organise my logic in English after the writing course. Actually, I organise my argumentative discourse moves *based on my Chinese logic, but it is very hard for me to translate them. (Bella, Interview at Time 2)*

In summary, comparison group students' reflections concentrated on language and structure knowledge, and at Time 2 gave little explanation of their content knowledge without any reference to argumentation or evaluation.

4.2.2.2 Process and Rhetorical Knowledge

Quantity

Comparison group students' knowledge in process and rhetoric categories had a smaller change than in formal knowledge of argumentation after the conventional writing course. While there were two more sub-categories in students' formal knowledge at Time 2 than Time 1, the process and rhetorical knowledge showed changes only in each sub-category. Figure 4.4 compares the comparison group students' comments in their process and rhetorical knowledge at Times 1 and 2.
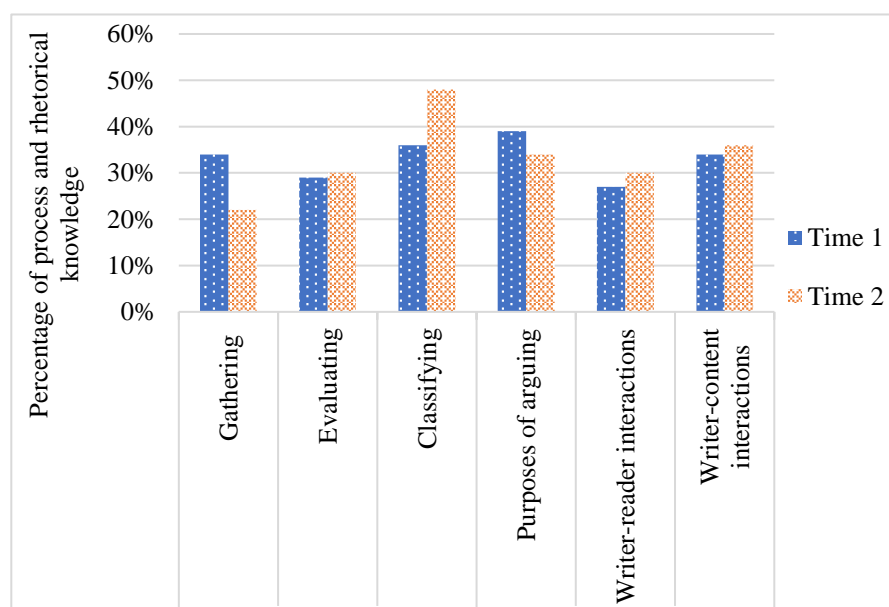
Figure 4.4 Changes in process knowledge and rhetorical
Knowledge at Times 1 and 2 of the comparison group

As shown in Figure 4.4, comparison group students' process knowledge had a greater change than rhetorical knowledge for the comparison group between Times 1 and 2. Process knowledge was divided into three sub-categories: gathering, evaluating, and classifying. The "classifying" category showed a greater increase, 36% to 48%, than the other two subcategories at Time 2; it was identified as the most popularly used process knowledge at both Times 1 and 2. There was no evidence of change in subcategory - "evaluating" after the conventional writing course.

In the rhetorical dimension, the changes by comparison group students in the three subcategories in "purposes of arguing", "writer-reader interactions", and "writer-content interactions" were small, a slightly higher percentage of "writer-reader interactions" and "writer-content interactions" was evident in the comparison group after the writing course (Time 1 - 27%; Time 2 - 30%) and (Time 1 - 34%; Time 2 - 36%); h the "purposes of arguing", however, showed a small decrease from 39% to 34%. Qualitative content analysis of these subcategories and thematic analysis of students' interviews provides further on students' development of process and rhetorical knowledge.

Substance

The qualitative content analysis of these codes of students' process and rhetorical knowledge in argumentation indicated that EFL students provided simple and superficial descriptions at Time 1, although a few improved after the conventional writing course with more complex knowledge in composing process and considerations of the purpose of the writing and of reader in their argumentative writing at Time 2.

In the process dimension, as noted in the quantitative comparison, the code "classifying" increased more than the code "gathering". Based on the qualitative content analysis of students' comments, the code of "classifying" encompasses a complex composing process, including classifying and presenting a topic in themes, while the code of "gathering" is a simpler process of grouping reasons.

Although the change in students' rhetorical knowledge was small, the substance change of "purposes of arguing" and "writer-content interactions" at Time 2 was meaningful compared with Time 1. That is, whereas "purposes of arguing" focused more on "my viewpoint", "my writing level", "Chinese education cultural", "my experience", and "the topic" at Time 1, at Time 2 it included more information about persuasion, such as "persuade the reader". A new code "make objective examples" appeared after the conventional writing course in the subcategory of "writer-content interactions", although most of their comments referred to "unify examples with my viewpoint", "let the reader know my viewpoint", and "being accurate and using word and grammar efficiently".

Students' Reflective Comments

There were some similarities in the reflections about the knowledge in the process and rhetorical element by the four students' interviews. They will be summarised into two aspects:1) Purpose, content, and features of knowledge after the intervention; and 2) their attitudes about writing instruction.

Participants' reflections on their changed understanding about the process and rhetorical knowledge in argumentation are reported first. Two comparison group students compared their knowledge about the writing process and the audience's requirement in argumentation before and after the conventional writing instruction. They began to pay closer attention to the genre context and, in explaining his changes in knowledge about process element after the writing course, Yun describes it as a translation process from "Chinese ideas into English". After the writing intervention, he began to think about writing procedures with a series of steps. In the interview, Yun explained that:

I do not do any plan before, just follow my thought and try to translate my Chinese ideas into English. While after the writing course, I will classify examples in both pros and cons sentences that rely on the topic before my writing. (Yun, Interview at Time 2)

Jean's descriptions about the increase of rhetorical knowledge showed that she was not satisfied with her lack of knowledge about in the writing. She said;

After the writing course, I learned to pay more attention to others' possible claims, while I have never paid attention to readers' perceptions before. (Jean, Interview at Time 2)

Secondly, students commented positively on the effect of content/model writing instruction on their process and rhetorical knowledge development. One student commented on the practicality of the newly acquired process knowledge in argumentation following their adoption of the writing course. Huang explianed that the content and mode writing instruction gave him "more confidence in writing"; he described that the teacher's intervention helped him classify exemplars.

I think the teacher's classification method is very helpful for me to write more words. Before my writing, I will classify examples in both pros and cons sentences rely on the topic, which gives me more confidence in the writing. (Huang, Interview at Time 2)

These students' changes in process knowledge and rhetorical awareness in argumentation appeared to be influenced by conventional writing instruction. The excerpts show that some students felt it had a satisfying effect on their writing learning.

4.3 Comparative Changes in Students' Knowledge in Argumentation: Experimental Group vs. Comparison Group

The previous section has explored students' knowledge changes about different elements in argumentation from experimental and comparison groups separately. This section will further compare the changes in these two groups of participants' knowledge elements between Times 1 and 2. Firstly, the two groups of students' knowledge elements in argumentation before the writing course are reported to constitute a baseline for the later comparison. Secondly, the experimental group students' knowledge about

different elements in argumentation will be compared with those in the comparison group after different writing instructions.

4.3.1 Pre-Instruction Baseline - Time 1

Students' formal knowledge was divided into three categories: structural knowledge, content knowledge, and language knowledge. The rhetorical and process knowledge remained as single dimensions. Experimental and comparison group students' knowledge in argumentation before the writing instruction are compared from three perspectives, they are elements groups, quantitatively, and the substance of each element. The three categories of knowledge in argumentation that experimental and comparison group students identified at Time 1 are presented in Figure 4.5 and 4.6.
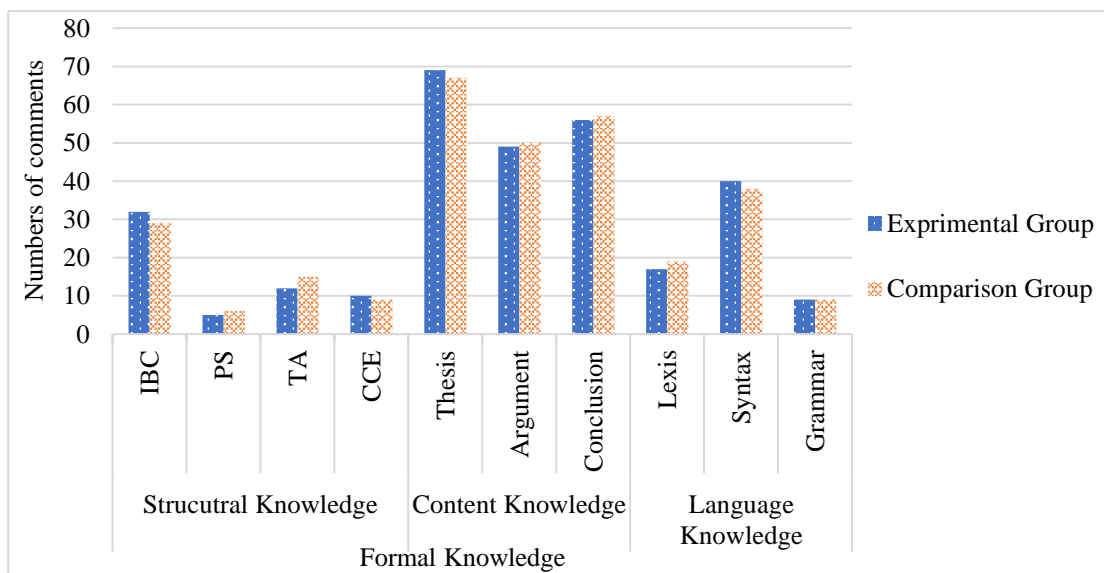
Figure 4.5 Students' formal knowledge at Time 1
Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim- Counterargument Claim-Evaluation.

As shown in Figure 4.5, students in experimental and comparison groups had similar formal knowledge in argumentation at the pre-instruction phase. Specifically, there are three elements in students' formal knowledge: structure, content, and language in both groups at Time 1. The structural knowledge includes four subcategories: introduction-body-conclusion, problem-solution, thesis-argument, and claim-counterargument claim-evaluation. The "introduction-body-conclusion" was identified as the most

frequently used discourse moves by both groups. The content knowledge included thesis, argument, and conclusion, with the subcategory of "thesis" considered as the most active element in students' content knowledge by both groups. The language knowledge was divided into lexis, syntax, and grammar, of which "syntax" was the most frequently mentioned by both experimental and comparison groups at Time 1. As seen in Figure 4.5, the number of comments for each code was similar for the two groups. In addition, within each category there was little difference in the elements.
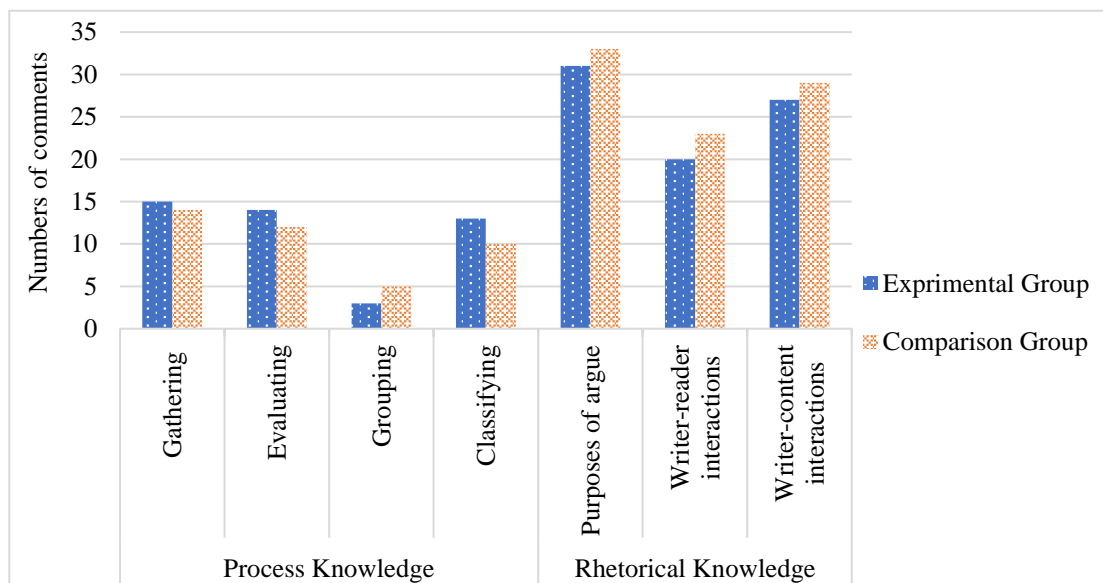
Figure 4.6 Students' process and rhetorical knowledge at Time 1

Figure 4.6 summarises the two groups' process and rhetorical knowledge in argumentation before instructions. In the process category, the data of both groups were coded similarly into gathering, evaluating, grouping, and classifying, with "gathering" and "evaluating" the most frequently referenced process for composing argumentative writing by both groups at Time 1. The two groups consistently conceptualised their knowledge of rhetorical element about argumentation into three codes: purposes of arguing, the writer-reader interactions, and writer-content interactions. Participants in both groups referred less frequently to "writer-reader interactions" at Time 1. Figure 4.6 shows each code was identified similarly by the two groups with little difference between the content of these elements at this stage.

4.3.2 Post-Instruction - Time 2

This section presents the results obtained from comparing two group' knowledge in argumentation from three categories: formal, process, and rhetorical levels at the post-instruction phase. The comparison of the changes in the knowledge between the two groups includes: 1) Quantitative comparison of two groups' responses to their post-questionnaire; 2) qualitative analysis and substance comparison of the two groups' responses to the open-ended questions in the post-questionnaire; 3) the comparison of students' reflective comments given in the post-interview between two groups. The quantitative results will be presented first in figures, followed by the substance change and reflective presentation.

4.3.2.1 Formal Knowledge

Quantity
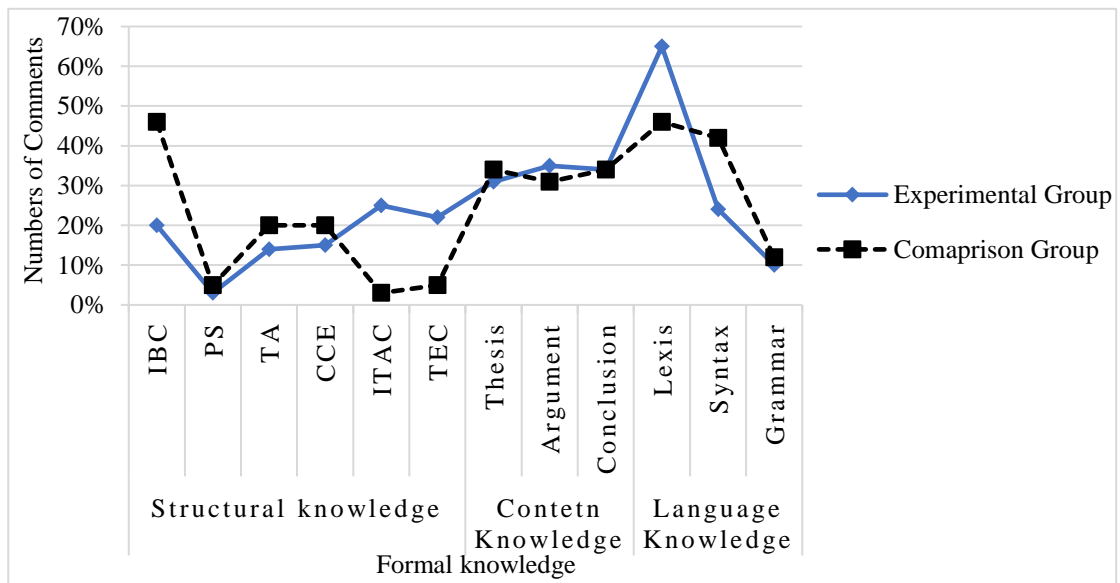
Figure 4.7 Students' formal knowledge at Time 2
Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim-Counterargument Claim-Evaluation; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion.

Figure 4.7 shows that experimental group students and comparison group students had bigger gaps in two dimensions, structural knowledge and language knowledge, than in content knowledge in argumentation after the different writing instructions at Time 2.

In the structural dimension, the code, "introduction-body-conclusion" (IBC), there is considerable difference between experimental and comparison groups after different writing courses; at Time 2, 46% of the comparison group students identified their organizational feature in argumentation as IBC, while only 20% of experimental group students used IBC. There was a slight decrease (49% to 46%) in comparison group students' choice of IBC between Time 1 and 2, while the experimental group had a sharp decrease (54% to 20%) in IBC. In addition, both experimental and comparison groups increased in their choice of "introduction-thesis-argument-conclusion" (ITAC) and "thesis-evaluation-conclusion" (TEC) when identifying argumentative structural knowledge. The experimental group students made a modest, but greater increase, in the choice of ITAC and TEC in structure than the comparison group. The experimental group identification of ITAC increased from 0% to 25%, and of TEC increased from 0% to 22%, whereas both ITAC and TEC increased only slightly from 0% to 3% and from 0% to 5% in the comparison group.

In the language knowledge dimension, there were marked differences in the subcategories of "lexis" and "syntax" after the different writing instructions between experimental and comparison groups. Although both groups demonstrated some changes in these two subcategories, there was a greater focus on "lexis" by students after the genre-based writing course than the conventional writing course; that is reference to "lexis" had increased from 26% to 65% in the experimental group, whereas the comparison group increase was less, from 29% to 46%. At Time 2 more comparison group students commented on "syntax" than experimental group students, because, the comparison group's reference to syntax had decreased from 58% to 42%, whereas the experimental group students had decreased from 61% to 24%. There was little difference in reference to "grammar" between these two groups at the post-instruction phase.

Based on the quantitative content analysis of the post-questionnaire, for students' knowledge of content subcategories ("thesis", "argument" , and "conclusion") in argumentation there was little difference between the experimental and comparison

groups at Time 2;   although "argument" was slightly higher for the experimental group (T Time 2 - 35%) after the genre-based instruction than comparison group (Time 2 - 31%).

Substance

The qualitative content analysis of these codes, comparing the knowledge of argumentation between the two groups, indicated differences after they received the two forms of writing instruction. The experimental group students demonstrated more positive changes formal in knowledge of argumentation, including structure level, language level, and content level than the comparison group students.

In the structure level, from the substance analysis of "IBC", "ITAC", and "TEC", the experimental group students demonstrated greater changes than the comparison group because they paid greater attention to the "argument" feature in their structural description of argumentative writing than comparison group students at Time 2. The code "IBC" was considered a general characteristic of structured writing as it lacks any identification of the particular meaning of genre, whereas, the organized structure of "ITAC" and "TEC" focused more on the arguing function rather than a vague structural description. Students, sensitive to genre awareness in argumentation, made prompt adoption to the choice of structure knowledge in the contextualised argumentative writing.

The examination of substance subcategory of "lexis" at Time 2 indicated that the experimental group students provided greater detail of language use in arguing than comparison group students.; For example,, they paid greater attention to "reporting verbs", "words of praise and critique", and "words of evaluation" in their "lexis" description after genre-based writing course. The comparison group students, after the conventional writing course, however, used "attitude labels", "conjunctions", and "reporting verbs", which lack specific consideration of the arguing function. The substance of subcategories - "syntax" and "grammar" did not change much after both writing courses.

At the content knowledge level, although the differences of subcategories in "thesis", "argument", and "conclusion" identified between experimental and comparison groups were small, the substance change of descriptions of "argument" at Time 2, nevertheless, were meaningful in a comparison between experimental and comparison groups. One difference between the two groups is that a few students in the experimental group gave comments such as "citing accurate data to persuade" and "the readable reasons" in their explanation of argumentative content, whereas almost all the comparison students, who responded to the question on argument content at Time 2, gave only general comments with statements, such as "contrast different arguments" and "prove my viewpoint with examples". In other words, a small number of experimental group students demonstrated their understanding of argument content by highlighting the purpose of the writing and the relationship between content and reader, while the comparison group students maintained their argument with a personal perspective.

Students' Reflective Comments

In this section, the reflections of the two groups of students on their knowledge of argumentation are compared. It will be presented into three aspects: 1) Content and nature of their previous knowledge; 2) purpose, content, and features of knowledge after the intervention; and 3) their attitudes about writing instruction.

First, data on two groups of students' reflections about their prior formal knowledge in argumentation are compared. Experimental group students (Hong, Lan, and Bai) talked about their previous formal knowledge in terms of structure level, language level, and content level. However, a comparison group student (Bella) focused only on the language level. All considered that their previous formal knowledge of argumentation was vague, limited, and confused: One experimental group student, Hong, recognised that before the writing instruction she gave vague descriptions about the writing moves in argumentation; Lan commented negatively on his previous content knowledge, noting that examples of personal ideas were limited evidence in argumentation; and Bai did not have confidence in her language use in argumentation

at Time 1. In addition, only one comparison group student, Bella, commented on her previous formal knowledge in the language aspect.

I used the three-stage template (IBC) before as I was familiar with it, and it seemed timesaving for me. However, after the model analysis in this writing course, I recognised that the IBC model was too general (p. 100). (Hong, experimental group)

Before taking this writing course, my concerns about argumentative writing were my ideas and examples in my personal experience. However, some classroom activities let me know that they were too limited to persuade. (p. 101). (Lan, experimental group)

I was quite sure that my language knowledge about arguing is poor, actually, it was very hard for me to find accurate words to express my argument (p. 101). (Bai, experimental group)

I recited a variety of complex expressions of formulaic sentences, and I tried to use them in my writing for high writing scores but now I have changed my mind. In my opinion, advanced lexis and complicated grammar features are not enough for me to write (p. 113). (Bella, comparison group)

Secondly, analysis of participants' reflections about their changed perceptions of formal knowledge in argumentation demonstrate that three students from the experimental group commented on their changed perceptions of structure knowledge, language knowledge, and content knowledge, while only one student from the comparison group reported his changed perceptions at the language level. Experimental group students, –Hong, Lan, and Lily, were aware that they had little understanding of the moves, language use, and reasons in argumentation, which constrained their performance in argumentative writing. They reported, however, that the teacher-led construction of the writing model expanded their knowledge about the structure, language use, and content choices in arguing, persuading, evaluating, and discussing argumentation. In addition, one comparison group student, Jean, indicated that her language knowledge was only at the linguistic level at the initial stage but, after the writing instruction, she began to concentrate on the sentence logic in writing. The weak

reflections on the structure and content elements of formal knowledge by the comparison group might be because the conventional writing course did not encourage the comparison group students to reflect on their discourse moves and content in a specific field.

I must admit that before this writing course I had little understanding of the form of argumentation beyond the three main moves (introduction, body, conclusion). However, the teacher's guidance of constructing a writing model in argumentation expanded my understanding of the structure in argumentation. The counterargument and evaluation are needed to ensure a specific purpose rather than general narration (p. 101). (Lily, experimental group)

Before this writing course, I was quite sure that the complex sentence and correct grammar usage would help me to have a high score in argumentation writing. However, the teacher helped us build a writing model in argumentation with various language use of arguing, persuading, evaluating, and discussing. I gradually understand that I have to use words accurately in praising, criticizing, arguing and evaluating in my writing (p.102). (Hong, experimental group)

Before taking this writing course, my concerns about argumentative writing were my ideas and examples of my personal experience. However, the practices in argumentation made me know that they were not enough to persuade. Actually, it is very hard for me to find more effective evidence to prove my claim. But I know that I should think about the accuracy of data and how to make my reasons readable (p. 102). (Lan, experimental group)

Before this writing course, I thought complex sentences and advanced words were the keys to a high writing score but now I have changed my mind. In my opinion, the logic between sentences is more important than advanced lexis and complicated grammar features (p. 113). (Jean, comparison group)

Thirdly, two groups of students had differing estimations of the effect of the writing instruction on their formal knowledge development: Two experimental group students

(Lily and Bai) thought the genre-based writing method was highly effective for their formal knowledge development; two comparison group students (Huang and Bella) though that conventional writing teaching course had little effect in raising students' formal knowledge. Students' reflection on the challenges of language use in argumentative writing, after the writing instruction, were made only by the comparison group.

The counterargument, evaluation give me more ideas in my writing. That is, I can write more words in my writing. Actually, I knew these different angles (evaluation, argument, counterargument) before this writing course, but I cannot express myself deeply in English. The teachers-led questions in analysing the exemplars about the structures, language, and reader's needs in argumentation inspired me to write more (p. 103). (Lily, experimental group)

The writing teacher led us to analyse some exemplars in distinguishing various language use of arguing, persuading, evaluating, and discussing in argumentation with various questions. She asked us analyse language expressions in different contexts of arguing. They were very useful. I could express myself easily with appropriate language (p. 103). (Bai, experimental group)

Language use remains troubled for me after the writing course. I always use the translation method in my argumentative writing, but my English proficiency is very low, and I do not know how to express my ideas (p. 113). (Huang, comparison group)

I still do not know how to organise my logic in English after the writing course. Actually, I organise my argumentative discourse moves *based on my Chinese logic, but it is very hard for me to translate them (p. 114). (Bella, comparison group)*

4.3.2.2 Process and Rhetorical Knowledge

Quantity

This section presents the differences in students' process and rhetorical knowledge of argumentation between the experimental and comparison groups at Time 2. The quantitative results are presented in Figure 4.8.
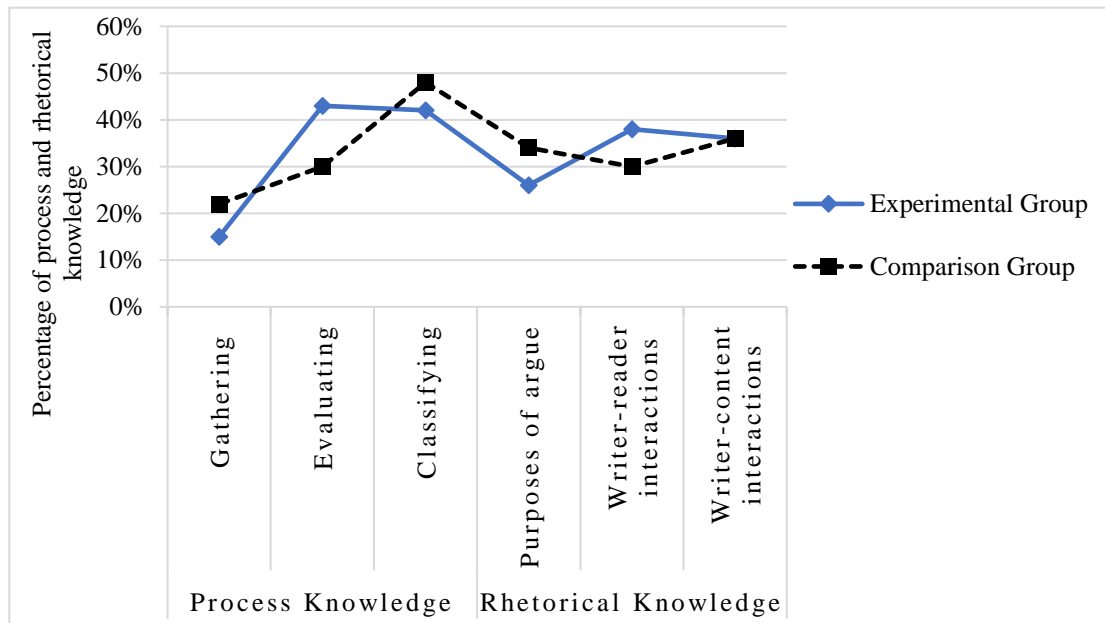
Figure 4.8 Students' process and rhetorical knowledge at Time 2

Analysis of process knowledge, in the questionnaire, identified similarities and differences between these two groups at Time 2. As shown in Figure 4.8, it can be seen that the subcategories for the experimental group suggested more use of "evaluating", while for the comparison group, they were "classifying" and "gathering"., with the biggest gap between experimental and comparison groups in the subcategory of "evaluating".

A key finding in the quantitative content analysis of two groups of students' rhetorical knowledge in argumentation is that experimental and comparison groups appeared a consistent developmental direction in each subcategory in numbers after the writing interventions, differing only in the degree of changes. That is, both groups increased in "writer-reader interactions" and decreased in the code of "purposes of arguing", whereas there was little change in "writer-content interactions". Figure 4.8 shows that, at Time 2, the experimental group made greater reference to the subcategory of "writer-reader interactions" compared with comparison group, while the comparison group students showed more use of "purposes of arguing". These two groups had similar performance in the subcategory of "writer-content interactions".

Substance

Based on the qualitative content analysis of students' process knowledge, it appears that students in both groups demonstrated more complex composing ways after writing instructions, but that the experimental group students made greater gains overall than comparison group students between Time 1 and Time 2. The subcategory of "evaluating" encompassed the most complex composing process, including understanding, summary, gathering, and evaluating, and the experimental group suggested more use of "evaluating" than comparison group at Time 2. The subcategories of "gathering" and "classifying", however, were a simpler process, including classifying reasons and gathering information in themes. The comparison group students showed more use of these two procedures of argumentation than the experimental group students after the writing instruction.

In the rhetorical dimension, the substance investigation of subcategories of "writer-content interactions" and "writer-reader interactions" at Time 2 indicated that the experimental group students had a greater focus on the audience than comparison group students, and paid greater attention to the "understandability of reasons" and "reliability of the examples" in their description of subcategory, "writer-content". The comparison group students, however, used "unify examples with my viewpoint" and "use words and grammar accurately", which lacked specific consideration of the audience. In addition, the substance subcategory of "writer-reader interactions" did not change much for the comparison group after the traditional writing course, while experimental group students changed their focuses from "let the reader know my viewpoint" to "identify readers' possible arguments and persuade them".

Students' Reflective Comments

In this section, the reflections of the two groups of students on their knowledge of argumentation are compared, which refers to students' rethinking of their knowledge about process element and rhetorical element. It will be presented into three aspects: 1) Content and nature of their previous knowledge; 2) purpose, content, and features of knowledge after the intervention; and 3) their attitudes about writing instruction.

First, data on two groups of students' evaluations of their prior knowledge about the process and rhetorical elements are compared. Two students (Lan and Hong) from the experimental group declared that their pre-instruction process knowledge and rhetorical knowledge of argumentation was limited. While Lan evaluated her previous process knowledge as "insufficient", Hong commented negatively that her previous rhetorical knowledge in argumentation, in which she "only expressed my ideas about this topic" and "never paid attention to the argument or the reader" was a limited view in argumentative writing. No similar comment was evident with n the comparison group after the conventional writing course

I have not considered the writing process consciously before this course. Actually, I always organised my ideas when I saw the prompt. This kind of idea organization is insufficient to satisfy my writing (p. 107). (Lan, experimental group)

Before this writing course, I have never paid attention to the argument or the reader of my writing, I only expressed my ideas about this topic. This one-sided expression is insufficient in the argumentation (p. 107). (Hong, experimental group)

Secondly, students' reflections on their changed knowledge about the process and rhetorical elements in argumentation were compared between the two groups. Students from both groups Comparison of their knowledge about the writing process and readers' needs in argumentation before and after the writing course indicated that both groups of participants began to pay close attention to the genre context. One experimental group student (Lily) stated that her process knowledge changed from a one-step vague description to a complex series' steps. Rose's explanations about her changes in rhetorical knowledge about argumentation showed that initially she paid no attention to her audience in the writing; after the writing practice, she considered her audience's thoughts in argumentative writing. Comparison group students (Yun and Jean) reported similar changes in their reflections of knowledge about the process and rhetorical elements after the conventional writing course. Reflections by the experimental group, however, showed more information about the interactions among formal knowledge,

process knowledge, and rhetorical knowledge in the experimental group, whereas this was not evident in the reflections of the comparison group.

Before this writing course, I have not considered the writing process consciously, and I just found a couple of examples to support my claim. While the writing practices helped me to establish my writing model in composing the writing with some procedures: read and understood the prompt, summarised the basic arguments in the reading, classified and gathered resources, and evaluated these things from argument and counterargument viewpoints (p. 107). (Lily, experimental group)

After the teacher's guidance of constructing my own writing model, it taught me that the consideration of readers' needs is important for English argumentative writing, although I have never paid attention before. After the examples during the class, the use of convincing evidence to persuade someone is needed. I should think about what they already thought (p. 108). (Rose, experimental group)

I do not do any plan before, just follow my thought and try to translate my Chinese ideas into English. While after the writing course, I will classify examples in both pros and cons sentences that rely on the topic before my writing (p. 117). (Yun, comparison group)

After the writing course, I learned to pay more attention to others' possible claims, while I have never paid attention to readers' perceptions before (p. 117). (Jean, comparison group)

Thirdly, in the interviews the students in both two groups were positive comments about their writing instruction. Two experimental students (Lily and Bai) commented on the practicality of the newly acquired process and rhetorical knowledge in argumentation following their adoption of teaching courses. One comparison group student (Huang) had similar praise for his process knowledge development after the conventional writing instruction. Both forms of writing instructions appear to enhance students' confidence in their writing. Two experiment group students showed enthusiasm in argumentation in their following comments.

Teachers' questions about structure, language, and rhetoric knowledge in analysing the exemplars were very helpful. After this guidance, I composed my writing with these procedures (i.e. summarisation, classification, gathering, and evaluation), and I found that it gave me more ideas in my writing. (p. 108). (Lily, experimental group)

Teacher's questions about textual features, arguing aims, and readers' perspectives in the textual analysis section were helpful for me. Because the thinking of the audience's potential ideas gave me a chance to think deeply about argumentation and helped me collect more information in my writing (p. 117). (Bai, experimental group)

I think the teacher's classification method is very helpful for me to write more words. Before my writing, I will classify examples in both pros and cons sentences rely on the topic, which gives me more confidence in the writing (p. 117). (Huang, comparison group)

4.4 High- and Low- Proficiency Students' Changes in Knowledge about Elements in Argumentation

The previous sections reported the changes in students' knowledge about elements in argumentation after two types of writing instructions. This section compares high- and low- proficiency students' changes in knowledge about elements of argumentation in response to the two forms of writing instructions in three dimensions: formal knowledge, process knowledge, and rhetorical knowledge. The first dimension, formal knowledge, is reported according to the sub-categories of structure, content, and language. The dimensions of process knowledge and rhetorical knowledge remain as separate single categories. Two types of analyses will be reported: 1) Quantitative comparisons of four groups' (experimental high and comparison high; experimental low and comparison low) changes in knowledge of argumentation according to data from their pre- and post-questionnaire; 2) the comparison of four groups' changes in substance of knowledge in argumentation with the data from the pre- and post-questionnaire. The quantitative changes will be presented first in Figure 4.9, followed by the substance changes.

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4.4.1 Formal Knowledge

4.4.1.1 Students in High-Proficiency Group

Quantity

High-proficiency students' formal knowledge baseline will be presented first, as it was the foundation for the later contrast at Time 2. The high-proficiency students in experimental and comparison groups had a consistent performance at the formal level at the pre-instruction phase. Two groups of high-proficiency students' quantitative changes of three subcategories - (structure, content, and language) in the formal level at Times 1 and 2 during different writing instructions are presented in Figure 4.9 and 4.10.

Figure 4.9 Changes in formal knowledge at Times 1 and 2 of the high-proficiency students
Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim-Counterargument Claim-Evaluation; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion.

Figure 4.9 shows that high-proficiency students in the experimental group had greater change in formal knowledge in argumentation than the comparison group at Time 2. Participants in both experimental and comparison groups made similar structural choices at Time 1. High-proficiency students in the experimental group had higher scores in the codes of "introduction-thesis-argument-counterargument-evaluation"

(ITAC) and "thesis-evaluation-conclusion" (TEC) than high-proficiency comparison group students at Time 2. For the code of "introduction-body-conclusion" (IBC), high-proficiency students in the experimental group decreased sharply over time whereas there was no noticeable change for students in the comparison group.

In the second subcategory, "content", experimental and comparison high-proficiency students had similar numbers of comments in each element at Time 1. However, there was an apparent difference in the element of "argument" at Time 2. The high-proficiency students in the experimental group, which had the lowest focuses in "argument" at Time 1, made greater gains than high-proficiency comparison group which had a higher percentage at Time 1; the scores of high-proficiency students in the comparison group changed little after the conventional writing instruction.

In the dimension of "language", "lexis" and "syntax" are the major foci. For these two codes, the experimental and comparison groups showed similar increases at Time 2; the code of "lexis" appeared, however, to have the greatest focus after writing courses with both groups. High-proficiency students in the experimental group increased from 32% to 70%, slightly more than those in the comparison group (33% to 68%). There was an overall decrease in the code - "syntax", however, for both groups at Time 2. High-proficiency students in the comparison group decreased (54% to 36%), less than those in the experimental group (59% to 19%). There was little change over time in the focus on "grammar" with both the high-proficiency experimental and comparison groups.

Substance

The baseline of the two groups of high-proficiency students' formal knowledge for the substance level is presented before comparing them at Time 2. At Time 1, the students in both groups achieved the similar scores prior to instruction. The quantitative content analysis showed high-proficiency students' marked differences between experimental and comparison groups in the changes in their formal knowledge in terms of "organisational structure", "argument", and "lexis". From the substance analysis, overall, experimental high-proficiency students show greater increase than comparison

group students in formal knowledge in terms of structure, content, and language elements. High- and low- proficiency students' answers to the questionnaire at Time 2 are presented in numbers.

Table 4.1 Two groups of high- and low- proficiency students' gaps in formal knowledge at Time 2

Sub-category	Element	Element content	EX-H	CO-H	EX-L	CO-L
Structure	ITAC	Introduction, thesis, argument, counterargument, evaluation	6	1	4	0
	TEC	Thesis, evaluation, conclusion	4	1	4	1
	IBC	Introduction, body, conclusion	4	8	3	8
	TA	Thesis, argument	2	4	3	5
	PS	Problem, solution	-	2	2	4
	CCE	Claim, counterargument claim, evaluation	2	2	3	2
Content	Argument	Citing accurate data	5	-	3	-
		Readable reasons	6	-	3	-
		Critique authorities	3	1	2	2
		Argument-counterargument summaries, evaluations	9	3	7	3
		Contrast different arguments	3	8	2	4
		Prove my viewpoint with relevant examples	2	7	3	7
Language	Lexis	Reporting verbs	6	6	4	3
		Words of praise and critique	7	-	6	-
		Words of evaluation	7	-	6	-
		Attitude labels	-	2	1	3
		Conjunctions	2	4	3	4

Note. IBC=Introduction-Body-Conclusion; TA=Thesis-Argument; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion. EX-H=experimental high-proficiency group; CO-H=comparison high-proficiency group; EX-L= experimental low-proficiency group; CO-L=comparison low-proficiency group

As shown in Table 4.1, more high-proficiency students in the experimental group identified "argument", "counterargument" and "evaluation" in their organizational features, however, the high -proficiency students in the comparison group at Time 2

most commonly identified the structural aspects, "argument", "body", and "thesis". That is, experimental high- proficiency students after the genre-based writing instruction were more focused on specific genre of argumentation than those in the comparison group after their conventional writing instruction.

In addition, experimental group students considered the substance of "argument" as "argument-counterargument summaries, evaluations", "critique authorities", "citing accurate data", and "readable reasons"; their descriptions indicate that they paid attention to the aims of argument, the accuracy of argument, and their relationship with reader when organising their writing content at Time 2. The comparison group students focused on "contrast different arguments" and "prove my viewpoint with relevant examples", emphasising, the consistency and coherence of their writing content.

In the element of "lexis", high-proficiency students in the experimental group were concerned with "reporting verb", "words of praise and critique", and "words of evaluation", which connect closely to the aim, content, and structure of argumentation. The comparison group students, however, commented on "attitude labels", "conjunctions", and "reporting verbs", which are concerned more with cohesion in the general writing, and not a specific situation.

4.4.1.2 Students in Low-Proficiency Group

Quantity

Two groups of low-proficiency students' formal knowledge changes with different writing instructions will be analysed similarly to the high proficiency students. The findings with quantitative content analysis of participants' pre- and post-instruction questionnaire are presented in Figure 4.10.
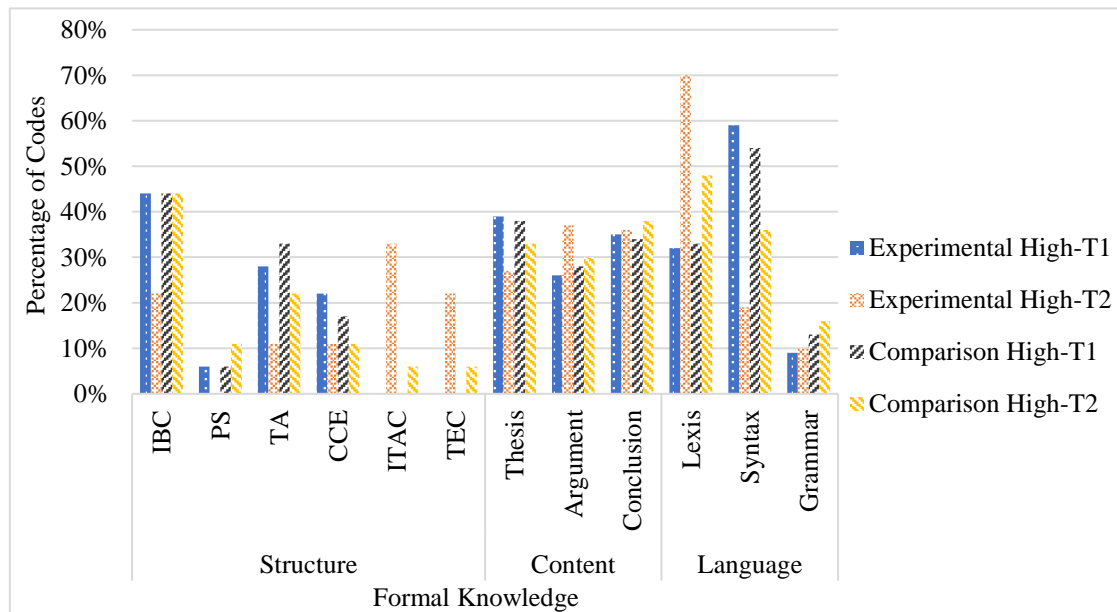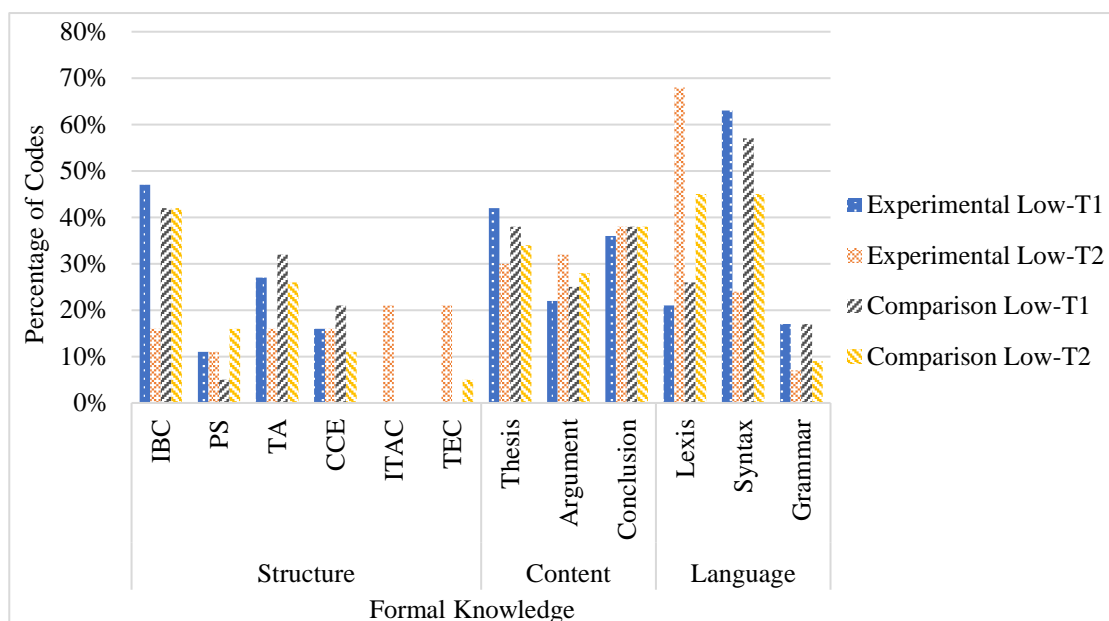
Figure 4.10 Changes in formal knowledge at Times 1 and 2 of the low-proficiency students

Note. IBC=Introduction-Body-Conclusion; PS=Problem-Solution; TA=Thesis-Argument; CCE=Claim-Counterargument Claim-Evaluation; ITAC=Introduction-Thesis-Argument-Counterargument-Evaluation; TEC=Thesis-Evaluation-Conclusion.

As shown in Figure 4.10, both experimental and comparison low-proficiency students, in the pre-instruction stage, had similar levels of formal knowledge in argumentation. In other words, they had similar subcategories and numbers of codes in their formal knowledge at Time 1. At Time 2, there was relatively little variability in the changes of content knowledge compared with the other two dimensions of structure and language for both experimental and comparison groups.

Experimental group low-proficiency students made greater improvement in the elements of "ITAC", "TEC', "argument" and "lexis" after the genre-based writing teaching than comparison group low-proficiency students, particularly in the codes of "introduction-thesis-argument-counterargument-evaluation" (21%) and "thesis-evaluation-conclusion" (21%); in these codes the low-proficiency students (0% and 5%) in the comparison group made little change. In the code of "introduction-body-conclusion", low-proficiency students in the experimental group sharply decreased over time (from 47% to 16%), whereas there was no change for students in the comparison group.

With language knowledge, there were more changes in "lexis" and "syntax" than "grammar" for low-proficiency students in both experimental and comparison groups; there was a greater focus on "lexis" after the writing courses in both groups. Low-proficiency students in the experimental group increased from 21% to 68%, slightly more than those in the comparison group (26% to 45%), whereas there was an overall decrease in "syntax" in both groups at Time 2. Comparison low- proficiency group decreased (57% to 45%), less than those in the experimental group (63% to 24%). There was little change over time in the focus on "grammar" for both groups.

In content knowledge, participants in the experimental and comparison groups had similar numbers of comments in each code at Time 1, but with some differences in the codes of "argument" and "thesis" at Time 2. The low-proficiency students in the experimental group with the lowest scores in "argument" at Time 1 made greater gains (from 22% to 32%) than those with a higher starting scores; the scores of low-proficiency students in the comparison group changed little after the traditional writing instruction (from 25% to 28%). In addition, the experimental low- proficiency group students had a greater decrease in "thesis" from 42% to 30% than the comparison group from 38% to 34%.

Substance

The baseline at Time 1 for the substance level indicated that two groups of low proficiency participants had a rudimentary understanding of formal knowledge in argumentation at the pre-instruction phase. The quantitative analyses of low-proficiency students' formal knowledge change, similar to high-proficiency students, showed that there were marked differences between experimental and comparison groups in terms of "organisational structure", "argument", and "lexis" across Times 1 and 2. Table 4.1 presents the findings of the changes of these three elements of substance analysis for the two groups. At Time 2, experimental low-proficiency students paid more attention to "argument", "counterargument" and "evaluation" in their structure knowledge, than comparison group students who continued to use a general structural description of "body" and "thesis". That is, experimental groups paid more attention to the

organisational structure than comparison low-proficiency students, using words with argumentative communicative goals, such as "introduction-thesis-argument-counterargument-evaluation" and "thesis-evaluation-conclusion".

Secondly, in the subcategory of content knowledge, the qualitative content analysis of "argument" showed some differences between the two groups. As shown in Table 4.1, more low-proficiency students in the experimental group tried to evaluate both argument and counterargument to construct their critique, while comparison group students tended to concentrate on their own perspectives. In other words, low-proficiency experimental group students paid attention to the specific purposes of argumentation when organising their writing content at Time 2. Comparison group students, however focused on "prove my viewpoint with relevant examples", emphasising their personal experience.

In the "lexis" element, experimental group low-proficiency students connected closely with the aim of argumentation with "reporting verb", "words of praise and critique", and "words of evaluation" after genre-based writing course. While comparison group students paid attention to "attitude labels" and "conjunctions", which emphasised the coherence of writing in the general perspective.

4.4.2 Process Knowledge and Rhetorical Knowledge

4.4.2.1 Students in High-Proficiency Group

Quantity

Changes in process and rhetorical elements of argumentation knowledge of the experimental and comparison groups of high-proficiency students are compared from Time 1 to Time 2. The baseline of the two groups of the students for process knowledge and rhetorical knowledge will be presented first as the foundation for the later comparison after the writing course. There was little difference between experimental and comparison groups of high-proficiency students in terms of their process and rhetorical knowledge at Time 1; both groups had similar scores in the knowledge descriptions of each code. Their quantitative changes of three subcategories, rhetorical

knowledge and process knowledge, before and after different writing instructions are presented in Figure 4.11.
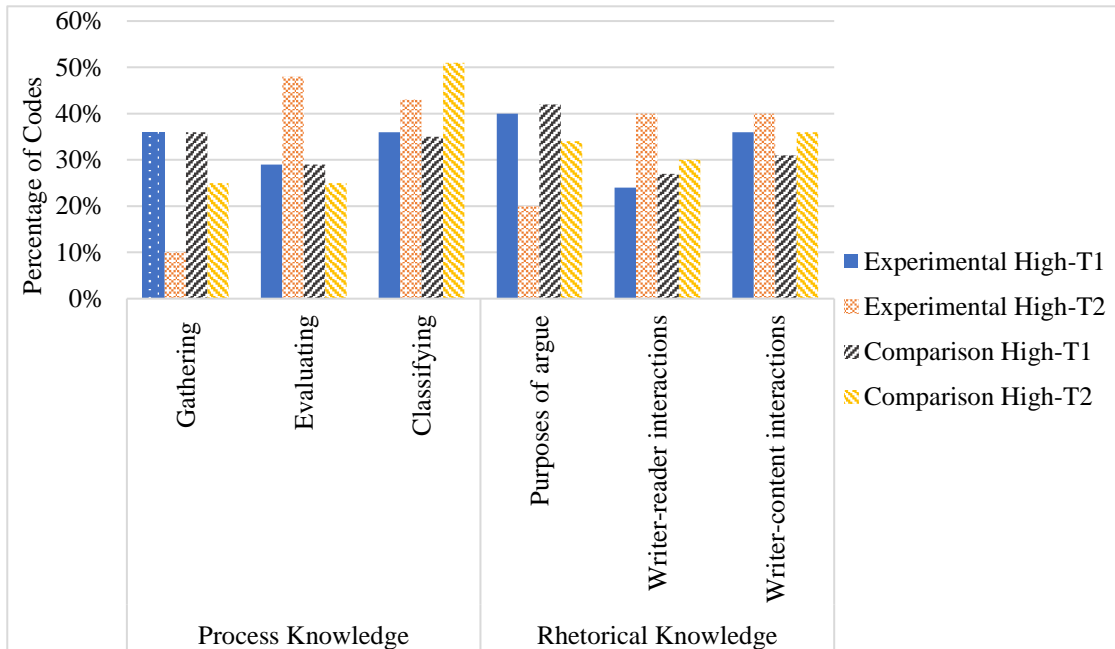
Figure 4.11 Changes in process knowledge and rhetorical knowledge at Times 1 and 2 of the high-proficiency students

After writing instructions, there was little change in the "evaluating" element for high-proficiency students in the comparison group compared with an increased score for experimental group high-proficiency students from 29% to 48%; the high- proficiency students in the comparison group, however, had higher scores in the code of "classifying" than experimental group students at Time 2. In addition, the code of "gathering" decreased more in the experimental group from 36% to 10% than the comparison group with a decrease of only 11% from 36% to 25%.

In the category of rhetorical knowledge, there was little increase in the scores for "writer-reader interactions" and "writer-content interactions" for comparison high-proficiency group students with some decreases in "purposes of arguing". There is evidence that the changes of high-proficiency students in the experimental group were, in most cases, greater than those made by the comparison group; the experimental group, "writer-reader interactions" had increased from 24% to 40%, and "writer-content

interactions" had increased from 36% to 40%. The experimental group students, however, decreased from 40% to 20% in references to "purposes of arguing" after the genre-based writing instruction.

Substance

The two groups of high-proficiency students' process and rhetorical knowledge baseline, the pre-instruction phase, for the substance level appeared to be relatively similar with some understanding of process and rhetorical knowledge in argumentation. The quantitative content analysis, previously reported, showed that two groups of high-proficiency students at Time 2 differed markedly in the five elements of rhetorical and process knowledge, that is, "evaluating", "classifying", "purposes of arguing", "writer-content interactions" and "writer-reader interactions". The qualitative content analysis of students' process and rhetorical knowledge further describes the changes in substance of these five elements. The following Table 4.2 describes the substantial differences in these five elements at Time 2.

Table 4.2 Two groups of high- and low-proficiency students' gaps in process and rhetorical knowledge at Time 2

Category	Element	Element content	EX-H	CO-H	EX-L	CO-L
Process	Evaluating	Classify, summarise, evaluate reasons in different arguments	10	4	6	4
	Classifying	Classify and present topic	5	8	8	7
Rhetoric	Purposes of arguing	My viewpoint, experience	2	7	4	7
		Persuade the reader	5	3	4	2
		Correctness of statements	3	5	5	7
	Writer-content	Unify examples with my viewpoint	1	6	3	8
		Being accurate and using word and grammar efficiently	2	5	5	6
		Work on the understandability of reasons	6	1	4	-
		Address the reliability of the examples	6	-	2	-
		Make objective examples	5	4	2	2
	Writer-reader	Let reader know my viewpoint, position	3	8	4	9
		Strengthen the persuasion	7	4	5	3
		identify readers' possible argument/counterargument and try to persuade logically	10	1	6	-

Note. EX-H=experimental high-proficiency group; CO-H=comparison high-proficiency group; EX-L= experimental low-proficiency group; CO-L=comparison low-proficiency group

The qualitative content analysis indicated that experimental high-proficiency students generally made more increases than comparison group students in their process and rhetorical knowledge change. In the process level, with analysis of the substance of "evaluating" and "classifying" at Time 2, the code of "evaluating" was identified as a multilayered process, which included classification, summarisation, and evaluating reasons. Another code "classifying" was constructed from two simpler procedures. In other words, high-proficiency students in the experimental group reported using more

complex process strategies in their argumentative writing after the genre-based writing instruction.

For the substance analysis of rhetorical knowledge, the element of "arguing purposes", more high-proficiency students' in the experimental group documented "persuade the reader" and "correctness of statements", while comparison group high-proficiency students focused more on "my viewpoint and experience". For the element of "writer-reader interactions", it appeared that most of experimental group high-proficiency students focused on "identify readers' possible argument and try to persuade logically", which emphasises the purpose of argumentation and the quality of the reasons; whereas the comparison group students tended to focus on "letting reader know my viewpoint and position". In the "writer-content interactions" element, high-proficiency students in the experimental group were concerned with "work on the understandability of reasons" and "address the reliability of the examples", which connects closely with the audience. The comparison group students, however, commented on "unify examples with my viewpoint" and "being accurate and using word and grammar efficiently", which is more concerned with language use and sentence cohesion at the surface textual level.

4.4.2.2 Students in Low-Proficiency Group

Quantity

Two groups of low-proficiency students' process and rhetorical knowledge comparison will be similarly analysed in two ways: frequency and substance. The quantitative results are presented in Figure 4.12.
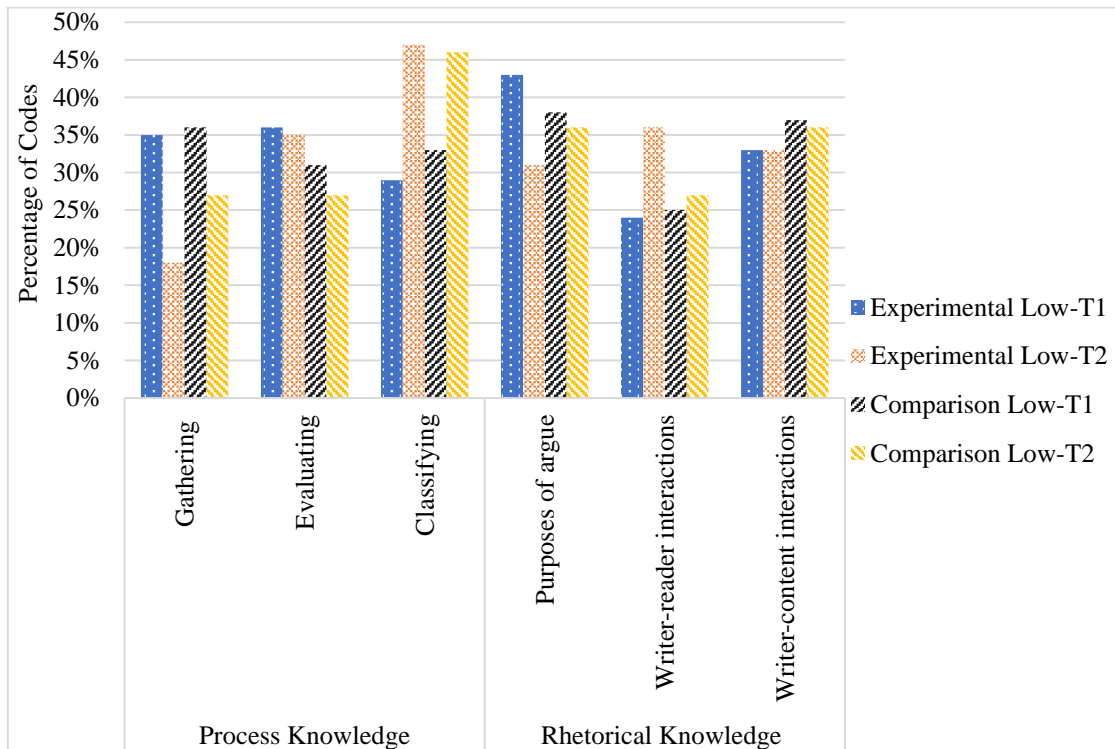
Figure 4.12 Changes in process knowledge and rhetorical knowledge at Times 1 and 2 of the low-proficiency students

As shown in the Figure 4.12, low-proficiency students in both experimental and comparison groups had similar dimensions and frequency of codes in their process and rhetorical knowledge at the pre-instruction phase. At Time 2, the low-proficiency students had marked differences between experimental and comparison groups in only three codes: "gathering", "evaluating", and "writer-reader interactions. In the process level, after writing instructions, there was little change in "gathering" element for low-proficiency students in the comparison group compared with a greater decrease for experimental group low-proficiency students (from 35% to 18%). However, there was a greater decrease in the code of "evaluating" for the comparison group (from 31% to 27%) than the experimental group with had only 1% decrease. In addition, for the code of "classifying", both groups increased similarly, that is, the experimental group increased from 29% to 47%, while the comparison group increased from 33% to 46%.

In the category of rhetorical knowledge, there was little increase in the percentage of "purposes of argue" and "writer-content interactions" for comparison low-proficiency students with some increase in "writer-reader interactions". There is

evidence that the change achieved by high-proficiency students in the experimental group was greater than the comparison group, that is, the experimental group, "writer-reader interactions" increased from 24% to 36%, and the comparison group students changed from 25% to 27%.

Substance

Analysis of the process and rhetorical knowledge at the substance level indicated that the two groups of low-proficiency students had little process and rhetorical knowledge in argumentation at baseline, the pre-instruction phase. The quantitative content analysis in the previous subsection showed that two groups of low-proficiency students had marked differences in their rhetorical and process knowledge with the three elements: "evaluating", "classifying", and "writer-reader interactions". The second level qualitative content analysis indicated that they showed differences with the changes in the four elements of substance, including "evaluating", "classifying", "writer-reader interactions", and "writer-content interactions". From Table 4.2, it can be argued that experimental group low-proficiency students had a smaller increase than the comparison group students in their process and rhetorical knowledge. At the process level, the substance analysis showed that the code "classifying" was identified more frequently than the code "evaluating" in composing process with "classify and present topic" and "synthesis information in themes". It would appear that a small number of low-proficiency students in the experimental group could use more complex process strategies in their argumentative writing after the genre-based writing instruction.

The qualitative content analysis of low proficiency students' rhetorical knowledge suggested that the experimental group noted the purpose of argumentation and the quality of the reasons more often than the comparison group with the elements of "writer-reader interactions" and "writer-content interactions" at Time 2. However, their comments related to "purpose of arguing" showed little difference between these two groups at substance level. In the element of writer-reader interactions, more experimental group students made comments on "strengthening the persuasion" and "identify readers' possible argument/counterargument and try to persuade logically",

which suggested they were beginning to understand the purpose of argumentation, while the comparison group referred only to their personal position and perspective with comments of "Let reader know my viewpoint, position". In addition, with the element of "writer-content interactions", similar to high- proficiency group, experimental group students low proficiency students, made connections to the reader of their writing; that is, they were referred more to "work on the understandability of reasons" and "address the reliability of the examples", comparison group students, however, identified more statements of language use, such as "efficient words" and "accurate grammar".

4.5 Summary

This chapter reported the changes in students' knowledge of argumentative writing after both groups received instruction, either a genre-based approach or a traditional content/model approach. Overall, the experimental group students' knowledge in argumentation, with the genre-based instruction, appeared to have changed to a greater extent than the comparison group with traditional writing instruction. The following chapter reports on students' changes in writing performance to identify how the argumentative writing of both groups of students changed after writing instruction.

CHAPTER FIVE

AN ANALYSIS OF STUDENTS' CHANGES IN ARGUMENTATIVE WRITING

5.1 Overview

The previous chapter reports the changes in students' knowledge about different elements of argumentation after specific writing instruction. This chapter reports the analysis results of participants' argumentative writing performance, from the aspects of discourse move structure, writing substance, and overall writing quality from Time 1 to 2. There are three purposes of this chapter. First, it describes changes in the writing performance in argumentation for the experimental group and the comparison group after they engage in genre-based writing instruction and conventional writing instruction, respectively. Second, it compares the writing performance of the experimental and comparison groups, in terms of discourse move structure, writing substance, and overall writing quality; and third, it examines the effect of students' writing proficiencies on their argumentative writing performance.

5.2 Writing Performance of Experimental and Comparison Groups at Time 1 and Time 2

The changes in experimental and comparison group students' writing performance of argumentation are presented with a focus on discourse move structure, writing substance, and overall writing quality.

5.2.1 Discourse Moves

The first writing category, discourse move structure in argumentative writing, was broken down into six elements: claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data (Toulmin, 2003). The three aspects of changes in

students' discourse move structure in argumentation will be presented: 1) Status of students' discourse move structure at Time 1; 2) changes of experimental group and comparison group students' discourse move structure in argumentative writing between Time 1 and Time 2; 3) comparison of two groups students' changes in discourse move structure in argumentative writing at Time 2.

5.2.1.1 Discourse Moves at Time 1

This section presents the status of experimental and comparison groups' discourse move structure in argumentative writing at Time 1 as a baseline for later comparison at Time 2. The general discourse moves of the participants of the experimental and comparison groups, the descriptive statistics and independent sample *t*-test for the discourse moves are presented in Table 5.1. The interpretation of students' discourse move structure in argumentation in this study followed Stapleton and Wu (2015) and Qin and Karabacak (2010) by assessing six elements in argumentation.

Table 5.1 Discourse moves between the experimental and comparison groups in the pre-test

Discourse moves	Group	N	M	SD	*t*	*p*	95%CI LL	95%CI UL
Claim	EX	59	1.08	.385	-.614	.541	-.215	.113
	CO	59	1.14	.507				
Data	EX	59	1,71	1.099	-1.169	.245	-.639	.165
	CO	59	1.95	1.105				
Counterargument claim	EX	59	.63	.522	.350	.727	-.158	.226
	CO	59	.59	.529				
Counterargument data	EX	59	.68	.706	.535	.594	-.183	.319
	CO	59	.61	.670				
Rebuttal claim	EX	59	.27	.485	-.361	.719	-.220	.152
	CO	59	.31	.534				
Rebuttal data	EX	59	.19	.473	.400	.690	-.134	.202
	CO	59	.15	.448				

For the experimental group (N=59), the mean discourse moves for six argumentative elements are: Claim (M=1.08), data (M=1.71), counterargument claim (M=.63), counterargument data (M=.68), rebuttal claim (M=.21), and rebuttal data (M=.19). It

appears that the experimental participants performed better in argumentative writing at Time 1 with two discourse moves of claim and data than with the moves of counterargument claim, counterargument data, rebuttal claim, and rebuttal data. For the comparison group (N=59), the mean discourse moves for six argumentative elements are: Claim (M=1.14), data (M=1.95), counterargument claim (M=.59), counterargument data (M=.61), rebuttal claim (M=.31) and rebuttal data (M=.15). These data suggest that, at Time 1, the comparison group students were similar to the intervention group students; that is, they performed better in claim and data rather than with the moves of counterargument claim, counterargument data, rebuttal claim, and rebuttal data in argumentative writing.

After checking the normal distribution of the data, six independent samples t-test were used to compare the experimental and comparison groups' use of the six argumentative elements to see whether these two groups showed any difference in discourse move structure in argumentation before any intervention. There was no statistical significance between experimental and comparison groups for any of the six argumentative elements before instruction: Claim [$t(118)$= -.614, $p > 0.05$], data [$t(118)$= -1.169, $p > 0.05$], counterargument claim [$t(118)$= .350, $p > 0.05$] , counterargument data [$t(118)$= .535, $p > 0.05$], rebuttal claim [$t(118)$= -.361, $p > 0.05$], rebuttal data [$t(118)$= .400, $p > 0.05$]. Analysis of the data confirms that the performance of experimental and comparison group students' discourse move structure in argumentative writing was similar in the pre-test.

5.2.1.2 Discourse Moves within each Group at Time 2

To capture the changes in students' discourse move structure in argumentative writing between the pre-instruction test and the post-instruction test, changes in the implementation of the six argumentative elements by participants in the experimental and comparison groups were investigated respectively. The paired sample t-tests were used to compare the use six argumentative elements by the pre-instruction test and post-instruction test by participants in the two groups to see whether engaging in genre-based

practices or conventional practices changed participants' discourse move structure in their argumentative writing (see Table 5.2 and 5.3).

Table 5.2 Comparison of Toulmin's elements between the pre- and post-test for the experimental group

Argumentative moves	Time	N	M	SD	t	p	95%CI	
							LL	UL
Claim	pre	59	1.08	.385	-1.92	.059	-.276	.005
	post	59	1.22	.418				
Data	pre	59	1.71	1.099	-1.13	.260	-.562	.155
	post	59	1.92	.970				
Counterargument Claim	pre	59	.63	.522	-4.33	.000	-.471	-.173
	post	59	.95	.344				
Counterargument Data	pre	59	.68	.706	-4.20	.000	-.725	-.258
	post	59	1.17	.769				
Rebuttal Claim	pre	59	.27	.485	-3.23	.002	-.494	-.116
	post	59	.58	.563				
Rebuttal Data	pre	59	.19	.473	-1.30	.196	-3.00	.63
	post	59	.31	.534				

The experimental group participants' use of the six argumentative elements (claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data) increased to varying degrees. As presented in Table 5.2, there were slight increases in three argumentative elements. Specifically, means for claim increased from (1.08; SD = .385) to (1.22; SD = .418); means in data increased from (1.71; SD = 1.09) to (1.92; SD = .970); and means in rebuttal data increased from a lower (.19; SD = .473) to (.31; SD = .534). These changes suggest experimental group students' greater awareness of using discourse moves about claim, data, and rebuttal data after the genre-based writing instruction. A further paired sample t-tests performed on the data, however, revealed that these increases were not statistically significant ($p > .005$), indicating that the genre-based writing approach appeared to have limited impact on the development of students' argumentative writing moves of claim, data, and rebuttal data.

As shown in Table 5.2, the experimental group students had significant gains in the argumentative elements about counterargument claim, counterargument data, and

rebuttal claim. The means of counterargument claim increased from.63 (SD = .522) to .95 (SD = .344); means of counterargument data increased from (.68; SD = .706) to (1.17; SD = .769); and means of rebuttal claim increased from (.27; SD = .485) to (.58; SD = .563), suggesting experimental group students' greater awareness of using discourse moves about counterargument claim, counterargument data, and rebuttal claim in argumentative writing after the genre-based writing instruction. The paired samples *t*-tests of the data reached statistical significance in the argumentative element for counterargument claim ($p = .05$), counterargument data ($p = .00$), and rebuttal claim ($p = .00$), indicating that the genre-based writing approach had a great influence of the development of students' argumentative writing moves of counterargument claim, counterargument data, and rebuttal claim.

Table 5.3 Shifts in Toulmin's elements in the pre- and post-test of the comparison group

Argumentative moves	Time	N	M	SD	t	p	95%CI	
							LL	UL
Claim	pre	59	1.14	.507	.18	.855	-.167	.201
	post	59	1.12	.458				
Data	pre	59	1.95	1.105	.90	.372	-.228	.601
	post	59	1.76	1.150				
Counterargument Claim	pre	59	.59	.529	-3.66	.001	-.524	-.154
	post	59	.93	.553				
Counterargument Data	pre	59	.61	.670	-.30	.761	-.255	.188
	post	59	.64	.737				
Rebuttal Claim	pre	59	.31	.534	-2.18	.033	-.389	-.017
	post	59	.51	.569				
Rebuttal Data	pre	59	.15	.448	-.42	.674	-.194	.126
	post	59	.19	.393				

For the comparison group participants', the six argumentative elements (claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data) changed to different degrees. As shown in Table 5.3, there was a decrease in two argumentative elements from pre-instruction test to post-instruction test; that is, the mean value in claim was 1.14 (SD = .507) at Time 1 and 1.12 (SD = .458) at Time 2; the mean value in data was 1.95 (SD = 1.10) at Time 1 and 1.76 (SD = 1.15) at Time 2.

These data suggest the comparison group students' use of discourse moves about claim and data in argumentation decreased after the conventional writing instruction.

Furthermore, there were slight increases in participants' use of argumentative elements, including counterargument data, rebuttal claim, and rebuttal data. Specifically, the means in counterargument data increased (.61; SD = .670) to (.64; SD = .727); means in rebuttal claim increased from (.31; SD = .534) to (.51; SD = .569); means increased in rebuttal data increased from (.15; SD = .448) to (.19; SD = .393). These data suggested that the intervention group students had greater awareness of using argumentative moves about counterargument data, rebuttal claim, and rebuttal data after the conventional writing instruction. A further paired sample *t*-tests performed on the data, however, revealed that the increases in the means of counterargument data, rebuttal claim, and rebuttal data were not statistically significant ($p > .005$), indicating that the conventional writing approach had a limited impact on the development of students' argumentative writing use of counterargument data, rebuttal claim, and rebuttal data.

As seen in Table 5.3, comparison group students had significant gains in only one argumentative element, counterargument claim, the means of which increased from (.59; SD = .529) to (.93; SD = .553). These data suggest the comparison group students were more aware of using a counterargument claim in argumentative writing after the conventional writing instruction. Furthermore, the paired samples *t*-tests on the data revealed that the paired comparison in the element of counterargument claim ($p < .005$) reached statistical significance, indicating that the conventional writing approach had a great influence on the development about students' argumentative move structure about counterargument claim.

5.2.1.3 Discourse Moves between Two Groups at Time 2

Differences in the experimental and comparison groups students' changes in discourse move structure were compared using analyses of covariance (ANCOVA) of the six argumentative elements in the post-instruction test to assess whether engaging in specific writing methods differentially changed participants' discourse move structure. Independent samples *t*-tests had previously ascertained there was no statistical

significance between experimental and comparison groups in terms of the six argumentative elements in the pre-instruction test.

After checking the covariates of the data, the analyses of ANCOVA were used to compare the changes in students' discourse move structure between experimental and comparison groups at Time 2. The results revealed that there was a significant difference in t counterargument data between two groups in the post-instruction test [$F (1, 115) = 14.15$, $p < .001$, partial $\eta^2 = 0.11$]; a smaller, non-significant difference in claim [$F (1, 115) = 1.564$, $p = .214$, partial $\eta^2 = .02$] and rebuttal data elements [$F (1, 115) = 1.875$, $p = .174$, partial $\eta^2 = .02$]; with a slight difference in the element ae data [$F (1, 115) = 0.704$, $p = .403$, partial $\eta^2 = .006$], the counterargument claim [$F (1, 115) = 0.002$, $p = .883$, partial $\eta^2 = .0002$], and the rebuttal claim [$F (1, 115) = 0.477$, $p = .491$, partial $\eta^2 = .004$]. These results indicate that the genre-based writing method had a significant effect on students' performance in counterargument data and had a positive impact on the argumentative moves about claim and rebuttal. Similar changes were not apparent in the comparison group after the conventional writing approach. However, there was little difference between the two groups in terms of students' argumentative writing moves about data, counterargument claim, and rebuttal claim.

5.2.1.4 Summary

There is evidence that the experimental and comparison group students showed similar performance in the discourse move structure about argumentation, two groups performed better in claim and data rather than the writing moves about counterargument claim, counterargument data, rebuttal claim, and rebuttal data in argumentative writing at Time 1. Both groups made some improvements in the discourse move structure in argumentation at Time 2, the increases of experimental group students' discourse moves, however, were greater than those made by comparison group students. The two groups showed significant differences in some discourse moves about argumentation in the post-instruction test.

5.2.2 Substance

Students' writing performance was further explored with a focus on the substance of reasoning in their argumentative writing. The level of students' writing substance was described as: Vague (low-quality), make sense (moderate-quality), consequential (good-quality), and abstract (high-quality) (Means & Voss, 1996). Three aspects of the changes in students' writing substance in argumentation are presented aspects: 1) Status of students' writing substance at Time 1; 2) changes in students' writing substance in argumentation between Time 1 and Time 2 for the experimental group and comparison group; 3) comparison of students' writing substance in argumentation at Time 2 between the two groups.

5.2.2.1 Substance at Time 1

This section presents the status of students' writing substance in argumentative writing at Time 1 to provide a baseline for later comparison at Time 2. The descriptive statistics and independent samples t-test were used to compare the writing substance profile of the experimental and comparison groups; these are presented in Table 5.4). The interpretation of students' performance about writing substance in argumentation in this study, informed by Means and Voss (1996) and Nussbaum and Schraw (2007), was by measuring the mean number of four types of reasoning in argumentation.

Table 5.4 Writing reasons between the experimental and comparison groups in the pre-test

Reasons quality	Group	N	M	SD	t	p	95%CI LL	95%CI UL
Vague	EX	59	.69	.793	.227	.821	-262	.329
	CO	59	.73	.827				
Make sense	EX	59	1.32	1.025	-1.427	.156	-.607	.099
	CO	59	1.07	.907				
Consequential	EX	59	.61	.720	.982	.328	-.138	.409
	CO	59	.75	.779				
Abstract	EX	59	.15	.363	1.006	.317	-.082	.252
	CO	59	.24	.536				

For the experimental group (N=59), at Time 1, the mean value of the number of four types of reasoning in argumentative writing are: Vague (M=.69), make sense (M=1.32), consequential (M=.61), and abstract (M=.15). These data indicated that participants commonly used "make sense" reasoning rather than other types arguments in their writing; "abstract" reasoning was used rarely in their argumentative writing. In the comparison group (N=59), the mean value of the four types of reasoning in students' writing substance are: Vague (M=.73), make sense (M=1.07), consequential (M=.75), abstract (M=.24). These data indicated that the comparison group students are similar to experimental group students, in that they showed greater use of "make sense" reasoning than other types of arguments in their writing; "abstract" reasoning, similarly, was rarely seen in their argumentative writing in the pre-instruction test.

After checking the normal distribution of the data, four independent samples t-test were used in this study to compare the use of each of the four types of argumentative reasons between the experimental and comparison groups at the baseline. No statistical significance difference was found between experimental and comparison groups in these four types of reasoning: Vague [t (118) = .227, $p > .05$], make sense [$t(118) = -1.427, p > .05$], consequential [$t(118) = .982, p > .05$], abstract [$t(118) = 1.01, p > .05$]. The results indicated that there was no significant difference in students' writing substance between the two groups at Time 1.

In summary, at Time 1, "make sense" is the most commonly used reasoning in students' argumentative writing by experimental and comparison groups with 'abstract' reasons used rarely in their argumentative writing, M=.15 (experimental group), M=.24 (comparison group). Students in these two groups were at a similar level in their quality of reasons in argumentative writing before either genre-based or traditional writing instruction.

5.2.2.2 Substance Change within Each Group at Time 2

To capture the changes in students' argumentative writing substance between the pretest and posttest, the mean numbers of four types of reasoning for participants in the experimental and comparison groups were investigated. Paired samples t-tests were

used to compare the means of the four types of arguments between the pre-instruction test and post-instruction tests in the two groups to establish whether engaging in genre-based practices or conventional writing practices changed participants' substance in argumentative writing (see Tables 5.5 and 5.6).

Table 5.5 Comparison of writing reasons between the pre- and post-test in the experimental group

Reasons quality	Time	N	M	SD	t	p	95%CI LL	UL
Vague	pre	59	.69	.793	4.118	.000	.253	.730
	post	59	.20	.406				
Make sense	pre	59	1.32	1.025	.100	.921	-.323	.357
	Post	59	1.32	.987				
Consequential	Pre	59	.61	.720	.000	1.000	-.237	.237
	Post	59	.61	.588				
Abstract	Pre	59	.15	.363	-6.310	.000	-.826	-.428
	post	59	.78	.744				

For the experimental group, the changes of four types of arguments (vague, make sense, consequential, and abstract) after the genre-based writing approach are reported in Table 5.5. The means changes for vague reasoning and abstract reasoning were investigated first in the experimental group. Specifically, the mean value of vague reasoning decreased from .69 (SD = .793) to .20 (SD = .406), while the mean of abstract reasoning increased from (.15; SD = .363) to (.78; SD = .744), indicating experimental group students' increased willingness to communicate with abstract reasons. They also reduce their use of vague reasoning in argumentation after the genre-based writing instruction. Furthermore, the paired samples t-tests revealed that the paired comparisons reached statistical significance for the changes in vague reasoning ($p < .005$) and abstract reasoning ($p < .005$); the effect sizes indicate the marked changes of these two argumentative reasons after the genre-based writing approach.

   The means of "make sense" reasoning and consequential reasoning were the same at pre-instruction and post-instruction tests for the experimental group. As seen in Table 5.5, the mean numbers in the make sense reasoning remained unchanged at 1.32, and

the mean numbers in the consequential reasoning remained the same at .61. These analyses indicate that while students in the experimental group frequently used the reasonings for "make sense" and "vague" before the intervention, there was evidence of a higher frequency of the use of "abstract" reasoning after the genre-based writing approach.

Table 5.6 Comparison of writing reasons between the pre-and post- tests in the comparison group

Reasons quality	Time	N	M	SD	t	p	95%CI	
							LL	UL
Vague	pre	59	.73	.827	.131	.896	-.241	.275
	post	59	.71	.811				
Make sense	pre	59	1.07	.907	-1.715	.092	-.551	.042
	post	59	1.32	.753				
Consequential	pre	59	.75	.779	2.612	.011	.083	.629
	post	59	.39	.588				
Abstract	pre	59	.24	.536	-1.224	.226	-.313	.075
	post	59	.36	.580				

For the comparison group, both increases and decreases of the four types of arguments (vague, make sense, consequential, and abstract) are reported after the conventional writing approach in Table 5.6. The mean value of the vague reasoning decreased slightly from.73 (SD = .827) to .71 (SD = .811), and the mean value of consequential reasoning also decreased from .75 (SD = .779) to .39 (SD = .588), suggesting students reduced their use of both vague and consequential reasons after the conventional writing instruction. These were revealed by a paired samples t-tests not to be statistically significant ($p > .005$).

There were slight increases in the means of "make sense" reasons and "abstract" reasons in the comparison group after the conventional writing course. The means of "make sense" reasons increased from 1.07 (SD = .907) to 1.32 (SD = .753) and means for abstract reasons also increased from .24 (SD = .536) to .36 (SD = .580), indicating students' greater awareness of make sense reasons and abstract reasons in arguing after the conventional writing instruction. A further paired samples t-test, however, showed

these not to be statistically significant ($p > .005$), and indicated that the conventional writing approach had a limited impact on students' use of make sense and abstract reasons in argumentative writing. As shown in Table 5.6, students in the comparison group showed more frequent use of the "make sense" and "consequential" reasons at Time 2 than at Time 1, but greater use of "vague" and "consequential" reasons at Time 1 than at Time 2.

5.2.2.3 Substance Change between Two Groups at Time 2

Analyses of ANOVA were used to compare the experimental and comparison groups' means for four types of argumentative reasonings in the post-instruction test. There was no statistical significance between the two groups in any of the four types of argumentative reasonings in the pre-instructional test.

The results of the ANOVA revealed a significant difference in the means for "vague" reasons (F (1,115) =18.523, p=.000, partial η 2 = .14) and "abstract" reasons (F (1,115) = 12.928, p = .000, partial η 2 = .101) between two groups in the post-instruction test; with only a slight difference in the "make sense" reasons (F (1,115) = 0.76, p =.783, partial η 2 = .0007) and "consequential" reasons (F (1,115) = 3.855, p = .052, partial η 2 = .032).

These results indicate that the genre-based writing instruction was effective in reducing the number of "vague" reasons and increasing the use of "abstract" reasons; these positive changes were not apparent for the comparison group after the conventional writing approach. There was no significant difference, however, between the two groups at Time 2 in terms of the number of "make sense" and "consequential" reasons used in the post-instruction test suggesting there was no advantage of the genre-based writing method in influencing students' argumentative writing substance.

5.2.2.4 Summary

Before instruction, the experimental and comparison group students showed similar performance in the dimension of substance in their argumentative writing. Both groups showed more frequent use of "vague" and "make sense" reasons rather than "abstract"

and consequential" reasons in argumentative writing at Time 1. After instruction, changes emerged in the argumentative writing substance in both groups, with the increases of development in the experimental group greater than those made by comparison group students. Moreover, these two groups showed significant differences in two types of argumentative reasons, namely, "vague" and "abstract" in the post-instruction test.

5.2.3 Overall Writing Performance

Students' writing quality was analysed using a writing rubric, from six dimensions: content inclusion, coherence, audience awareness and purposes, language resources for achieving the purposes, vocabulary, grammar, and mechanics (Appendix 6). Students' overall writing performance in argumentation was quantitatively assessed based on the total score of these six dimensions. The changes in students' overall writing quality in argumentation will be presented from three aspects: 1) status of students' overall writing quality at Time 1; 2) changes in students' overall writing quality in argumentation between Time 1 and Time 2 for experimental group and comparison group; 3) comparison of changes in overall writing quality in argumentation between the two groups at Time 2.

5.2.3.1 Overall Writing Quality at Time 1

This section presents the status of students' overall writing quality in argumentation for both experimental and comparison groups at Time 1 to provide a baseline for later comparison at Time 2 using descriptive statistics and independent samples t-test about their writing scores in Table 5.7.

Table 5.7 Overall writing scores between the experimental and comparison groups in the pre-test

Group	N	M	SD	t	p	95%CI LL	95%CI UL	Min	Max
COM	59	50.797	7.2	.030	.976	-2.73	2.81	37	70
EXP	59	50.754	7.9					32	72

In the experimental group (N=59), the mean of students' overall writing quality was 50.75 (SD = 7.9), and the comparison group (N=59), the mean of students' overall writing quality was 50.79 (SD = 7.2), indicating that the experimental group and comparison group showed similar scores for argumentative writing at Time 1, before any writing instruction. After checking the normal distribution of the data, an independent samples t-test was used in this study to compare students' overall writing scores between the experimental and comparison groups to confirm that there was no statistical significance between experimental and comparison groups in their overall writing quality in argumentation [t (118) = .03, p > 0.05]; that is, these two groups showed no obvious difference in argumentative writing quality before any intervention.

5.2.3.2 Changes in Overall Writing Quality within Each Group at Time 2

The overall writing scores for participants in the intervention and comparison groups were compared at Time 2 to assess any change in overall writing quality in argumentation between the pre-instruction test and the post-instruction test using paired samples t-tests, and to assess whether engaging in genre-based practices, or conventional writing practices, improved participants' argumentative writing scores (see Table 5.8).

Table 5.8 Comparison of overall writing scores between the pre- and post-test in the experimental and comparison groups

| Group | Time | Mean | SD | Min | Max | Sig. | 95% CI | |
							LL	UL
EXP	pre	50.9	7.9	31	71	.000	-8.06	-4.08
	post	57.1	6.1	46	70			
COM	pre	50.7	7.00	36.5	70.25	.003	-4.58	-.98
	post	53.5	5.56	40	69			

For the holistic writing scores of the experimental group (see Table 5.8), participants increased from a mean 50.9 (SD = 7.9) to a mean 57.1 (SD = 6.1), indicating improvement in experimental group students' argumentative writing. Using a paired samples t-test this increase revealed that the overall writing quality of the experimental

group was statistically significant ($p < .005$), and that the genre-based writing approach had markedly impacted on the development of students' overall quality in argumentative writing.

For the comparison group (see Table 5.8), participants' overall writing scores also increased; the mean increased from 50.7 (SD = 7) to 53.5 (SD = 5.56), suggesting that the comparison group students' overall quality in argumentative writing had improved. A paired samples *t*-test indicated that the increases was statistically significant ($p < .005$), and that the conventional writing approach had impacted positively on the development of students' overall quality in argumentative writing.

5.2.3.3 Changes in Overall Writing Quality between Two Groups at Time 2

Two independent samples *t*-tests were conducted to determine how students' overall writing quality changed over time and whether there were statistically significant differences in the mean numbers between these two groups at Time 1 and Time 2. The findings are presented in Table 5.9.

Table 5.9 Comparison of overall writing scores between the two groups in the pre- and post-test

Group	Time	Mean	SD	Min	Max	Sig.	95% CI	
							LL	UL
COM	Pre	50.7	7.1	36.5	70.25	.834	-3.02	2.44
EXP	Pre	50.9	7.9	31	71			
COM	Post	53.5	5.7	40	69	.001	-5.71	-1.44
EXP	Post	57.1	6.0	46	70			

The independent samples *t*-tests, reported in Table 5.9, show no significant difference between experimental and comparison groups in students' overall writing scores at Time 1 ($p > .005$). Secondly, experimental group students increased more than the comparison group students in their overall writing scores after different writing courses at Time 2. The result of the independent *t*-test showed that there is a statistically significant difference in students' overall writing scores between the experimental group and comparison group in the post-instruction test *($p < .005$)*. Students' overall writing scores

in the experimental group improved more than the scores of the students in the comparison group, suggesting that students benefitted more from the genre-based writing instruction than from the traditional writing course.

5.2.3.4 Summary

The overall argumentative writing scores for both the experimental and comparison groups increased from Time 1 to Time 2. Both groups showed a statistically significant difference between Time1 and Time 2 ($p <.005$). The change in overall writing score for the experimental group after the genre-based writing instruction, however, was greater than that for the comparison group.

5.3 High- and Low- Proficiency Students' Changes in Writing Performance: Experimental vs. Comparison Groups

The previous section compared the changes in students' argumentative writing performance between experimental and comparison groups at Times 1 and 2. The purpose of this section is to identify if there are any differences, related to students writing proficiency, of changes in students' argumentative writing performance in response to genre-based and conventional writing instructions. Therefore, in this section, students' writing proficiency is an additional variable. High- and low- proficiency students' writing performance will be examined, in a similar way as reported previously, in terms of discourse move structure, writing substance, and holistic writing scores.

5.3.1 Discourse Moves

The changes of four groups of students' (experimental high-proficiency, experimental low-proficiency, comparison high-proficiency, and comparison low-proficiency) discourse move structure in argumentative writing between pre-instruction test and post-instruction test, were investigated. As in section 5.2.1, argumentative move structure is broken down into six elements, including claim, data, counterargument claim, counterargument data, rebuttal claim, and rebuttal data. A series of repeated-measures ANOVA was undertaken to compare the changes of four groups of students' discourses

move structure between the pre-instruction test and post- instruction test to compare the impact of genre-based practices or conventional writing practices on discourse move structure in argumentative writing varied with high- or low-proficiency participants. (see Figures 5.1 to 5.6).

Figure 5.1 Shifts in claim in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

For "claim", the changes in the four groups of participants varied between Time 1 and Time2. As we can see from Figure 5.1, the mean value in the experimental high-proficiency group increased from 1.05 to 1.28, followed by the comparison high-proficiency group from 1.16 to 1.28. For the low-proficiency students, however, there was no change in the experimental group and a decrease in the mean for "claims" in the comparison group. Furthermore, the repeated-measures ANOVA revealed there were no statistically significant changes in "claim" among these four groups [$F(3, 70) = 0.593$, $p = 0.62 > .005$]. This suggests that was no difference between the genre-based writing method and the convention writing approach in terms of influencing high- or low-proficiency students' argumentative writing moves in "claim".

Figure 5.2 Shifts in data in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

For the changes in "data", the four groups of participants experienced various shifts between Times 1 and 2. Figure 5.2 shows the increase for the low-proficiency students in both experimental and comparison groups, from 1.4 to 1.6 and from 1.9 to 2.1. For the high-proficiency students in the experimental group there was little change, but the comparison group decreased after instruction. The repeated-measures ANOVA revealed that the changes in the means of data were not statistically significant among these four groups [$F(3, 70) = 1.01$, $p = 0.392$], indicating that there was little difference between the impact of the genre-based writing method and the convention writing approach impact high- and low- proficiency students' argumentative writing moves for "data".
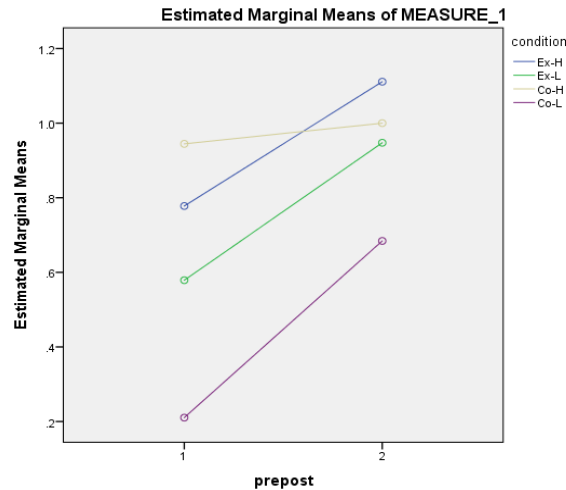
Figure 5.3 Shifts in counterargument claim in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

For the changes in "counterargument claim", the four groups of participants achieved dynamic change between Times 1 and 2. As shown in Figure 5.3, students in the experimental high and low-proficiency groups showed a marked increase in the means for "counterargument claim". In the comparison group, however, the low-proficiency students had a marked increase while high-proficiency students increased only slightly at Time 2. Furthermore, the repeated-measures ANOVA revealed that there was one significant difference among these four groups in the means of "counterargument claim" [F (3, 70) = 18.83, *p* =.000 <.005, w^2 = 0.13]. The Post Hoc Test showed that a significant difference between the experimental high-proficiency group and comparison high-proficiency group (*p* <. 05), suggesting that the impact of the genre-based writing method was greater than the impact of the conventional writing approach on the high-proficiency students' argumentative writing moves of "counterargument claim".

Figure 5.4 Shifts in counterargument data in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

With the "counterargument data", the changes for the four groups of participants differed between Time 1 and Time 2. As shown in Figure 5.4, students in experimental high and low-proficiency groups had marked increases in the means of "counterargument data" over time. In the comparison group, low-proficiency students increased while the high-proficiency students decreased from Time 1 to Time 2. Moreover, the repeated-measures ANOVA performed on the data found a significant difference among these four groups in terms of the changes in means of "counterargument data" from Time 1 to Time 2 [$F (3, 70) = 9.7$, $p = 0.000$, w2 = 0.12]. The following Post Hoc Test found a significant difference between the experimental high-proficiency group and comparison high-proficiency group ($p <. 05$), suggesting that there was a marked difference between the genre-based writing method and the convention writing approach in eliciting change in the use of counterargument data in argumentative writing for high-proficiency students.
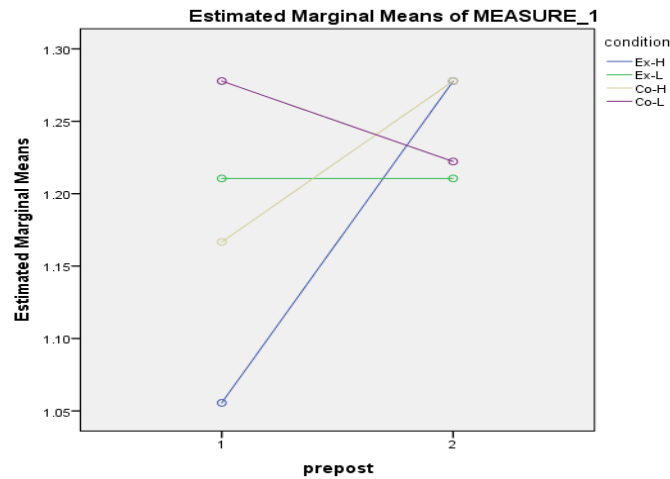
Figure 5.5 Shifts in rebuttal claim in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

With "rebuttal claim", the change in means for the four groups of participants varied between Times 1 and Time2. Figure 5.5 shows that there was an increase for students in the low-proficiency experimental group, but only a slight change for the students in the comparison group and the low-proficiency experimental group between Time 1 and Time 2. The repeated-measures ANOVA on "rebuttal claim" revealed that there was no significant difference among these four groups, $F_{(3, 70)} = 0.73$, $p = 0.54$], thus demonstrating that there was no statistically significant difference between influence of the genre-based writing method and the convention writing approach on the development of the high-and low-proficiency students' argumentative writing moves with "rebuttal claim".
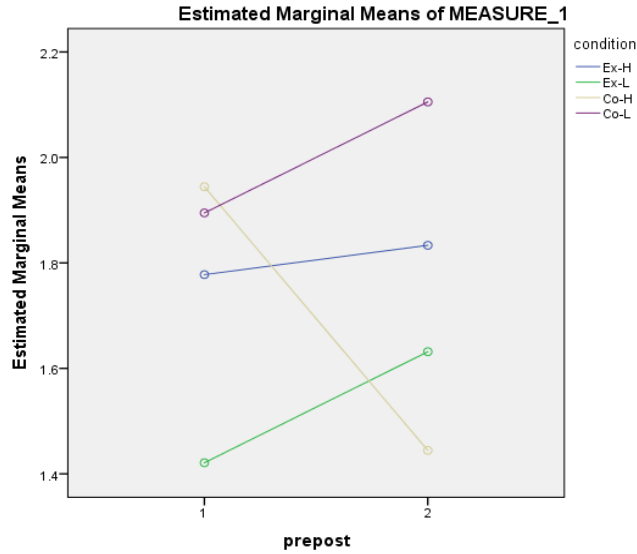
Figure 5.6 Shifts in rebuttal data in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

With the "rebuttal data", all the four groups of participants showed similar increases from Time 1 to Time 2. As we can see from Figure 5.6, the means for all the four groups increased slightly between Time 1 and Time 2. The repeated-measures ANOVA on "rebuttal data" revealed that there was no significant difference among these four groups [$F(3, 70) = 0.2, p = 0.89$], indicating that there was no statistically significant difference between the impact of the genre-based writing method and the conventional writing approach on the changes of high- and low- proficiency students' argumentative writing moves with the "rebuttal data".

These analyses demonstrated that there was considerable variation in the changes for the six argumentative elements among high- and low-writing proficiency students in the experimental and comparison groups. There was evidence of a statistically significant difference in the changes of the elements "counterargument claim" and "counterargument data" between Time 1 and 2 for these four groups. The other four elements, however, did not show statistically significant differences between Times 1 and 2 among the four groups.

5.3.2 Substance

This describes the changes of the four groups students' (experimental high-proficiency, experimental low-proficiency, comparison high-proficiency, and comparison low-

proficiency) writing substance in argumentation between pre-instruction test and post-instruction test. The changes in the means of the four types of arguing reasons for high- and low-proficiency participants in the experimental and comparison groups were investigated respectively. As in section 5.2.2, the argumentative substance was categorised into four types: vague reasons, make sense reasons, consequential reasons, and abstract reasons. A series of repeated-measures ANOVA was undertaken to compare the changes of four groups of students' writing substance between the pre-instruction test and post-instruction test to see whether engaging in genre-based practices or conventional writing practices influenced high- and low- proficiency participants' substance in their argumentative writing (see Figure 5.7 and Table 5.10).

Vague

Make sense

Consequential

Abstract

Figure 5.7 Shifts in writing reasons in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

As indicated in Figure 5.7, the means of "vague" reasons increased in the comparison high-proficiency group but decreased in the other three groups. In contrast, the means of "make sense" reasons decrease only in the experimental high-proficiency group, whereas the other three groups had variable increases. With the "consequential" reasons only the experimental low-proficiency group demonstrated an increase from Time 1 to Time 2. While there was an increase in the number of "abstract" reasons after writing instruction for all groups, a greater increase was noted for the experimental group than the comparison group. These findings suggest that the development of the quality of argumentative reasons was related directly to the writing instruction and students' writing proficiencies.

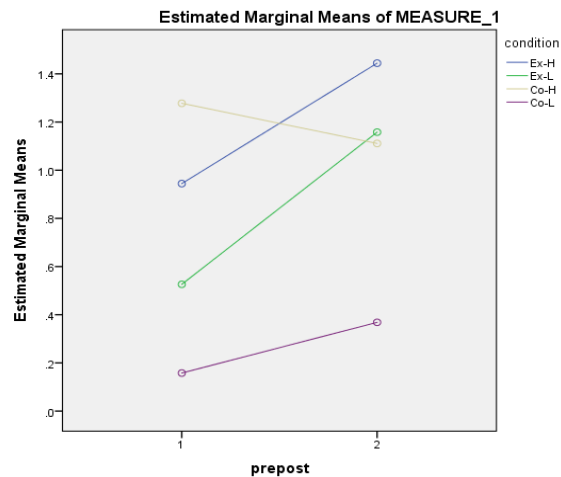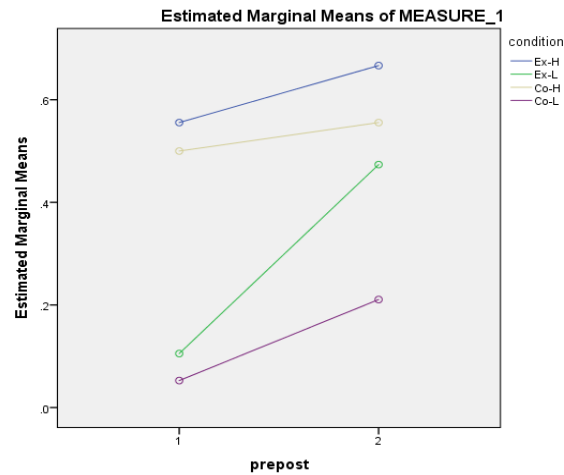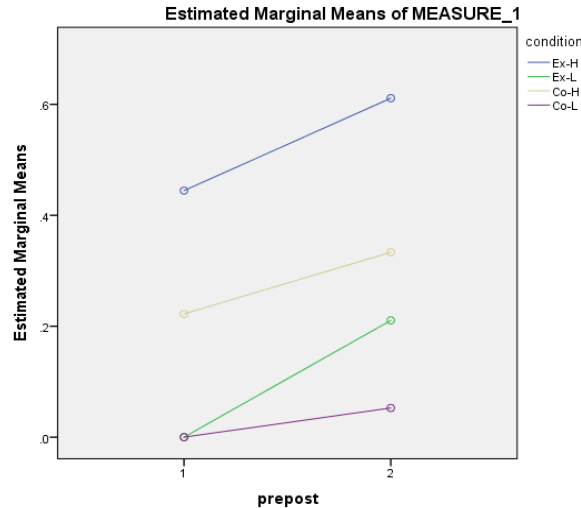Table 5.10 Shifts in writing reasons in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

Reasons	Groups	Pre-test			Post-test			Pre-post	Pre-post*groups
		N	M	p	p	M	SD	p	p
Vague	COMH	18	.56	.856	18	.89	.832	.052	.029
	COML	19	.95	.911	19	.68	.749		
	EXPH	18	.50	.857	18	.17	.383		
	EXPL	19	.89	.809	19	.26	.452		
Make sense	COMH	18	1.06	.938	18	1.44	.616	.112	.218
	COML	19	.84	.834	19	1.37	.831		
	EXPH	18	1.50	.924	18	1.28	1.018		
	EXPL	19	1.05	1.026	19	1.21	1.032		
Consequential	COMH	18	1.00	.840	18	.28	.575	.079	.039
	COML	19	.47	.612	19	.32	.478		
	EXPH	18	.83	.786	18	.78	.647		
	EXPL	19	.32	.582	19	.47	.513		
Abstract	COMH	18	.39	.698	18	.39	.698	.000	.047
	COML	19	.11	.315	19	.32	.478		
	EXPH	18	.33	.485	18	.89	.832		
	EXPL	19	.11	.315	19	.68	.478		

Table 5.10 summarises the changes in reasoning for the high- and low-proficiency groups in the experimental and comparison groups. It shows that there was a significant difference among the four groups in students' use of abstract reasons in argumentative writing after instruction (p = .000). The following Post Hoc Test found that the significant difference was between the experimental high-proficiency group and comparison high-proficiency group (p = .000). Furthermore, there were no statistically significant differences in other variables among these four groups between Times 1 and 2.

Generally, the four groups made smaller gains in writing substance when compared with the discourse move structure in argumentation. "Abstract" reasons increased significantly while the other three types of reasoning did not show such an increase. Although the means of all groups increased "abstract" reasons, the means of "make sense" reasoning remained as the most frequent at Time 2, as it had been at Time 1.

5.3.3 Overall Writing Performance

To identify the changes of the four groups students' (experimental high-proficiency, experimental low-proficiency, comparison high-proficiency, and comparison low-proficiency) overall quality in argumentative writing between pretest and posttest, the changes in overall writing scores for high- and low- proficiency participants in the experimental and comparison groups were investigated. As in section 5.2.3, students' overall writing quality six aspects were evaluated, including content inclusion, coherence, audience awareness and purposes, language resources for achieving the purposes, vocabulary, grammar, and mechanics. Results of the repeated-measures ANOVA, used to determine whether there were statistically significant differences between the students' overall writing scores in these four groups at Time 1 and Time 2, are presented in Figure 5.8.
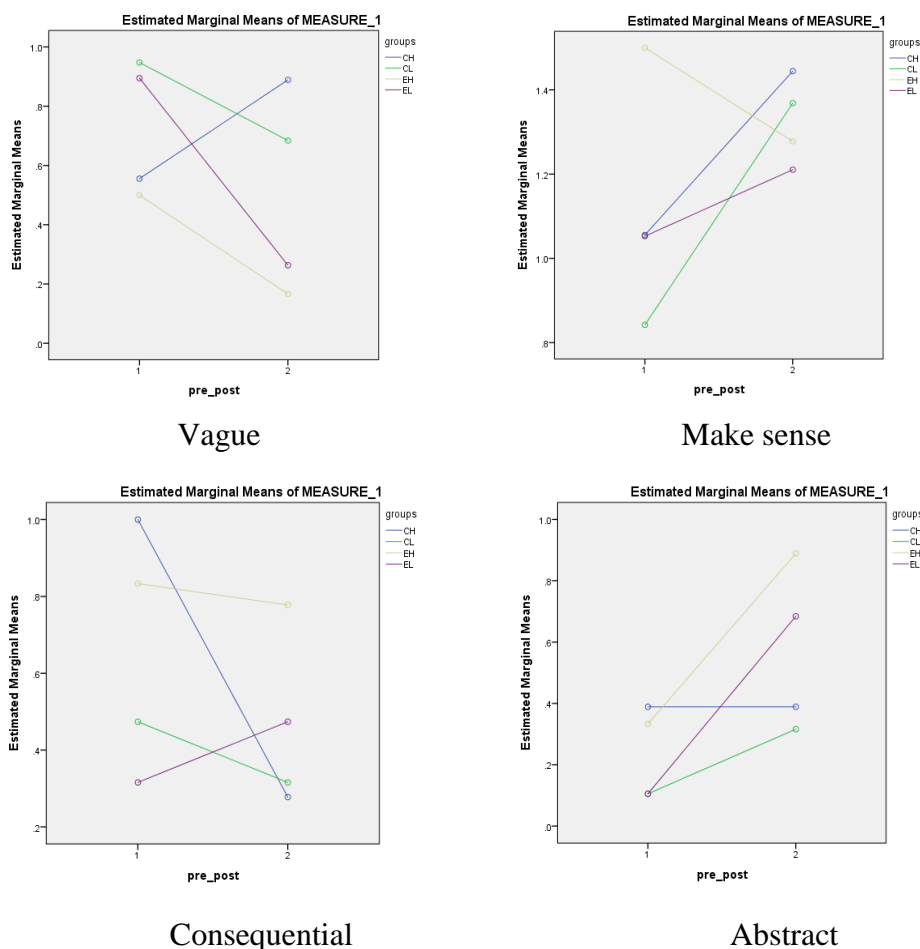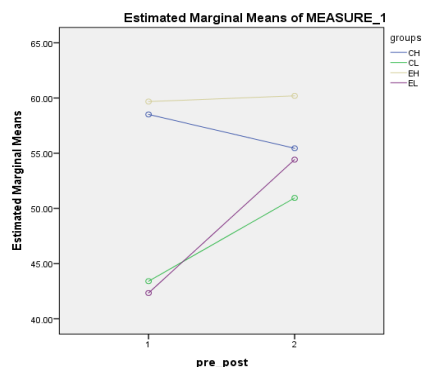
Figure 5.8 Shifts in overall writing quality in the pre- and post-test of the high and low-proficiency students in the experimental and comparison groups

As shown in Figure 5.8, the overall writing scores of low-proficiency students in the experimental group had a marked increase in their writing. The scores of experimental high-proficiency students remained unchanged across the two testing times. The comparison group students showed a different pattern in writing quality with the low-proficiency students demonstrating an increase while the high-proficiency students had a decrease in the writing scores after the conventional writing course. Moreover, the analysis revealed a significant difference among these four groups in students' overall writing scores ($F_{(3, 70)} = 24.19$, $p = .000$, w2 = 0.173). The Post Hoc Test showed that the significant difference was between comparison high-proficiency group and the experimental low-proficiency group ($p = .003$).

5.4 Summary

This chapter reported students' writing performance after they received either genre-based writing instruction or conventional writing instruction; high- and low-proficiency students' writing performance after different writing instructions are presented as well. Overall, experimental group students, with the genre-based instruction, appeared to have had a greater improvement in their writing performance in argumentation than the comparison group. In the next chapter, the positive changes in students' knowledge in argumentation and the characteristics of their changes in knowledge in argumentation will be summarised, and an investigation of the effects of knowledge development in argumentation on their writing will be reported.

CHAPTER SIX

EFFECT OF STUDENTS' KNOWLEDGE DEVELOPMENT

IN ARGUMENTATION ON THEIR WRITING

6.1 Overview

The previous two chapters reported the changes in students' knowledge and their writing development in argumentation for the two groups after they received the respective writing instruction. Changes of students' knowledge of argumentation were presented from three dimensions: formal knowledge, process knowledge and rhetorical knowledge; and the development of participants' writing performance in argumentation was evaluated from three dimensions: discourse move structure, substance, and overall writing quality. This chapter builds on that evidence by exploring the changes in their knowledge and the characteristics of these changes in the knowledge of argumentation, and by investigating the how those changes in their knowledge may mediate their writing.

There are three sections in this chapter. Section 6.1 briefly introduces the content of this chapter. Section 6.2 presents the characteristics of the changes in students' knowledge about argumentation. Section 6.3 compares students' changes in knowledge and their writing performance in argumentation and identifies their potential impact.

6.2 Characteristics of Students' Increases/Growth in Knowledge about Argumentation

To capture the characteristics of EFL students' development in knowledge of argumentation, a general summary of the changes in participants' knowledge, including changes in frequency of responses, substance of responses, and self-reflective responses, is presented first (see section 6.2.1). The characteristics of the increases in participants' knowledge are then investigated, followed by a general summary, to explore further the

developmental trends of knowledge at two levels. Section 6.2.2 reports students' growth in essential knowledge about every component of argumentation. Section 6.2.3 shows students' development of knowledge that different elements are aggregated in argumentation.

6.2.1 Overview of EFL Students' Development in Knowledge about Argumentation

The interpretation of the profile of EFL students' growth in knowledge in this study, described previously in Chapter Four, is based on measuring the changes in frequency of response, substance of responses, and self-reflective responses of participants' knowledge about different elements in argumentation for the two groups (see Table 6.1).

In the numeric dimension, the changes of students' knowledge in argumentation are reported in three levels: "significantly positive shift", "positive shift", and "negative shift". A significant positive shift (+) is an increase in frequency of more than 10%. A positive shift (0/+) is an increase in frequency from 1% to 10%. Elements that showed decreases are described as negative shifts (-). As shown in Table 6.1, the experimental group students presented obvious changes, from Time 1 to Time 2, in five codes, including "ITAC", "TEC", "lexis", "evaluation", and "writer-reader interaction". They also had positive changes in three codes; namely, "arguments", "classifying", and "writer-content interactions". The codes of "IBC", "thesis", "syntax", and "the purpose of arguing" showed negative shifts between Times 1 and 2 by the experimental group after the genre-based writing instruction, whereas the comparison group, students presented significant increases in two codes: "lexis" and "classifying" from Time 1 to Time 2. The comparison group also had positive shifts in five codes - "ITAC", "TEC", "arguments", "evaluation", and "writer-reader interaction", while the codes of "IBC", "thesis", "syntax", and "the purpose of arguing" showed negative changes at Time 2.

Participants' growth in knowledge about argumentation is then described from the substance dimension. Table 6.1 shows the qualitative content descriptions of students' written responses to the open-ended questions. Both experimental and comparison groups demonstrated more depth in their thinking in argumentation at Time 2 than Time

1. In the experimental group, development was more evident in terms of expressed knowledge about the structure of discourse moves and language features specific to the argumentative genre. In the comparison group, the change was more evident regarding their expressed knowledge about the language in the general context, and less evident in their expressed knowledge about the language features in the specific argumentative genre.

In the self-reflective dimension, the genre-based writing approach was more effective than the conventional writing approach in helping students to reflect on their knowledge about every element in argumentation. Participants from the experimental group talked more about adapting their knowledge of different elements to the argumentative context after the writing intervention. Comparison group students' reflections, however, centred on language patterns; after the conventional writing course, they reported that knowledge of the language was the greatest obstacle to their writing Details of the evaluation are presented in Table 6.1.

Table 6.1 Summary of evaluation about students' knowledge development in argumentation

Dimension	Subcategory	Experimental Group			Comparison Group		
		Numeric shifts	Substance Change	Reflections	Numeric Shifts	Substance Change	Reflections
Formal knowledge — Structure	IBC ITAC TEC	- + +	-From vague descriptions to more consideration of argument, counterargument, and evaluation in specific genre	-Their pre-instruction formal knowledge of argumentation (structure, language, and content) was vague and limited. -Their comparison of formal knowledge before and after the writing course showed that they have become more familiar with the formal knowledge in a specific genre. -They thought highly of the writing intervention and practicability of the new formal knowledge.	- 0/+ 0/+	-Persistent identification of general information -From vague descriptions to more consideration of argument	-Their pre-instruction language knowledge was limited. -Their comparison of language knowledge before and after the writing course showed that they stressed more on writing logic. -Writing teaching had low efficiency in raising students' language and structure knowledge.
Content	Arguments Thesis	0/+ -	-Argument content from general comments to more understanding of critic and arguing -More focus on the relationship between content and reader		0/+ -	-Persistent content descriptions about general comments	
Language	Lexis Syntax	+ -	-Words use from solely grammatical perspective to applied use of arguing -More familiar with the lexical and grammatical		+ -	-More stresses of language practical expression	

Dimension	Subcategory	Experimental Group			Comparison Group		
		Numeric shifts	Substance Change	Reflections	Numeric Shifts	Substance Change	Reflections
			knowledge in argumentation.				
Process knowledge	Evaluating	+	-More complex progress -Control their process in steps from argument and counterargument	-Their pre-instruction process and rhetorical knowledge in argumentation were limited and confused.	0/+	-More complex progress	-Their comparison of process and rhetorical knowledge before and after the writing course showed that they paid close attention to the genre context to a certain extent. -Students gave positive comments on the effect of writing instruction on their process and rhetorical knowledge development.
	Classifying	0/+			+		
Rhetorical knowledge	Purpose of arguing	-	-More critical thinking about their audience -More comments on problem-solving -Self-direction and evaluation -More focus on the argumentative context	- Their comparison of process and rhetorical knowledge before and after the writing course showed that they transferred from the only language organisation procedures and personal ideas elaborations to more familiar with the process and rhetorical knowledge in a specific genre of argumentation. -They thought highly of the writing intervention and practicability of the new process and rhetorical knowledge.	-	-More focus on the persuasion	
	Writer-reader interaction	+			0/+		
	Writer-content interactions	0/+			0/+		

Notes. + = significant positive shift. 0/+ = positive shift. - = negative shift

6.2.2 Growth in Essential Knowledge of Argumentation

After checking the profile of the changes in EFL students' knowledge, the knowledge about different elements in argumentation between the two groups was compared to investigate the characteristics of their changes in knowledge of argumentation. First, both groups showed more essential knowledge of argumentation about every component after the writing instruction at the post-instruction phase. That is, students provided more essential information about "argument" when they displayed their knowledge about different elements, including the formal element, process element, and rhetorical element.

In the experimental group, three types of analyses (numeric, substance, and reflection) were performed and the results showed that students expressed more essential information about an argument in their knowledge about the structural element after the genre-based writing approach. Specifically, the structural code "introduction-body-conclusion" (IBC), shifted negatively from Time 1 to 2. However, the structural codes - "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis-evaluation-conclusion" (TEC), which indicated genre awareness of essential aspects such as "argument", "counterargument", and "evaluation of argument and counterargument", had increased obviously with increases of 25% and 22% respectively at Time 2. The analysis of experimental group students' reflections on their acquired structural knowledge also indicated that, before instruction, some students had little knowledge about the structure of discourse moves specific to the essential information in argumentative genre. After the genre-based writing course, however, these students thought highly of the effect of the writing instruction on their development in structural knowledge of discourse moves in argumentation.

Second, in the language dimension, the quantitative shifts and substance analysis of the code, "lexis", indicated that the experimental group students paid greater attention to the language expressions about essential information in arguing, such as "reporting verbs", "words of praise and critique", and "words of evaluation" at Time 2. At Time 1

they were more concerned with grammatical correctness and other concerns about their use of language in writing. Experimental group students' reflections on their knowledge about language elements at Times 1 and 2 demonstrated that some participants began to think about how to use language for particular rhetorical purposes in argumentation. Some also spoke highly of the effect of genre-based writing instruction on their increased knowledge about language features specific to the argumentative genre.

Thirdly, increased essential information about "argument" was evident in experimental group students' knowledge in the content element. The analysis of the frequencies of codes indicated that the code "argument" increased from 28% to 35% between Times 1 and 2. Furthermore, the analysis of students' comments in "argument" showed that they used "personal stories" and "ideas comparison" to display their content at Time 1,   although their comments about content in argumentation changed to "citing accurate data", "readable reason", and "critique authorities" after the writing instruction. This implies that essential information about the content element, "audience awareness", of the experimental group students changed positively at Time 2. Students' reflection on their knowledge of the content element suggested whereas they had a negative attitude towards their previous content knowledge, their explanation of their changes in content knowledge indicated a higher sensitivity to argumentative context after the writing course.

In the process dimension, the frequency of the code of "evaluating" increased markedly for the experimental group at Time 2. The analysis of the substance of the code "evaluation" demonstrated that participants focused on how to proceed with essential information about "argument" in greater detail, such as "understanding, summary, gathering, and evaluating" in the argumentative writing at Time 2 than Time 1. Students' reflection about their knowledge in the process element indicated that they regarded their previous process knowledge as "insufficient"; after the genre-based writing course, they explained their changes focusing on only one procedure to a complex series of steps.

Finally, the intervention group students' rhetorical knowledge showed similar development. Analysis of the frequency and substance of the code, "writer-content interactions", and participants' comments such as "work on the understandability of reasons", "address the reliability of the examples", and "make objective examples", indicated that the essential information of specific argumentative awareness appeared after the genre-based writing instruction. Experimental group students' reference to "writer-reader interactions" also increased from 26% to 38%. The qualitative analysis of this code showed that students made a critical analysis of their writing substance at Time 2. That is, students' "writer-reader interactions" comments changed from "let the reader know my viewpoint", "let the reader assert my position" to "identify readers' possible claim" and "try to persuade logically". Students expressed negative attitudes towards, or nonsatisfaction with, their previous knowledge about the rhetorical element in argumentation; that is, they were not satisfied that, before the instruction, they did not take the audience into consideration in argumentative writing. They also thought highly of the effect of writing instruction on their development of rhetorical knowledge in the essential information of argumentative genre's intended purposes and audience awareness.

The comparison group also demonstrated more essential knowledge about each component of argumentation after the instruction. They, however, did not improve as much as the intervention group in essential knowledge about different elements. For the comparison group, two codes in the structure dimension increased after the conventional writing course, these were "introduction-thesis-argument-counterargument-evaluation" (ITAC) and "thesis- evaluation-conclusion" (TEC), both of which suggested a greater awareness of essential information about argument. The code "IBC", which was only followed with interest in a general situation decreased from Time 1 to 2.

From the language aspect, comparison group students focused more on language usage in their writing at Time 2 than Time 1. For example, at Time 1, their use of the "lexis" code concentrated on vague statements, such as "advanced vocabulary" and "linking words", which did not consider the specific writing purpose while, at Time 2,

students referred to goals of language use, such as "reporting verbs", "attitude labels", and "conjunctions". Comparison group students' reflection about their knowledge in language element at Times 1 indicated that some students had a negative attitude towards their previous language knowledge. After the conventional writing course, at Time 2, some students were frustrated by their lack of language knowledge relevant to the argumentative writing.

Thirdly, in the dimension of content knowledge, the quantitative analysis showed that comparison group students paid more attention to essential information about "argument" at Time 2 than at Time 1, while the substance analysis of "argument" suggested that, to a small degree, students had more essential knowledge of argumentation. At Time 1, students responded to the question on argument content as "contrast different arguments" and "prove my viewpoint with examples". At Time 2, the only additional comment about the essential information of "argument" was "critique authorities", while the two codes, previously noted, still accounted for a great proportion of the responses.

In the process dimension, comparison group increased significantly in the code of "classifying" at Time 2. Analysis of the substance in the code "classifying" indicated that participants focused on the process of classifying and presenting various themes in the argumentative writing at Time 2. The change showed some evidence that they considered their writing procedures with an awareness of argumentative genre after the conventional writing instruction. Students' reflection on their knowledge of the process element, at Time 2, suggested that they began to pay close attention to the genre context; their process knowledge developed from focusing on a translation process to the thinking of writing procedures as a series of steps in argumentation.

At the rhetorical level, students' changes in two subcategories about "purposes of arguing" and "writer-content interactions" were meaningful. In the quantitative analysis of the frequency, each of these two codes had a slight increase of 3% and 2% from Time 1 to Time 2. Analysis of the substance in the rhetorical code, "purposes of arguing", indicated they focused more on "my viewpoint", "my writing level", "Chinese education

cultural", "my experience", and "the topic" at Time 1, whereas at Time 2, there was greater evidence of awareness of essential information about persuasion, such as "persuade the reader". A new comment "make objective examples" was apparent after the writing course in the subcategory of "writer-content interactions". Comparison group students' reflection on their knowledge of rhetorical element before and after the writing course indicated that they were not satisfied with their lack of awareness of the audience in the argumentative writing prior to the writing course.

6.2.3 Aggregation of Knowledge about Different Elements in Argumentation

The second characteristic of knowledge development is that students' knowledge of discrete elements in argumentation was aggregated after the writing instruction. That is, students developed a more holistic knowledge model of argumentation in which different knowledge elements, such as formal knowledge, process knowledge, and rhetorical knowledge were aggregated to serve better the aims of argumentation at the post-instruction stage.

For example, in the experimental group, students' descriptions of "counterargument", in different elements, including structure knowledge, language knowledge, process knowledge, and rhetorical knowledge after the genre-based writing instruction were aggregated. There was a high frequency (25%) of the code of "introduction-thesis-argument-counterargument-evaluation" (ITAC) in the structure knowledge dimension at Time 2, suggesting that more experimental group students described their knowledge about the structure of discourse moves with information about "counterargument" at Time 2. At Time 1, however, most of them had described their structure of discourse moves with "introduction-body-conclusion" (IBC). In the language dimension, the code of "words of praise and critique" increased, which suggested that the experimental group students paid more attention to counterargument after the genre-based intervention.

In the process knowledge dimension, the frequency of the code- "evaluating" increased significantly from 31% to 43% at Time 2 for the experimental group students;

the analysis of substance for this code   identified that experimental group students described their knowledge about the writing procedures for the argumentative genre by referring to   "classifying, grouping, and evaluating reasons from argument and counterargument" after the genre-based writing course. In the rhetorical knowledge dimension, experimental group students' increase in frequency of reference to the subcategory of "writer-reader interactions" from Time 1 to 2 was significant. Furthermore, the substance analysis of this subcategory suggested that students' understanding of knowledge about rhetoric in argumentation was developed to a deeper level as the codes they described developed from "let the reader know and assert my position" to "think about audience' evidence of argument and counterargument". That is, they began to be aware that the aim of argumentative writing was to respond to someone, and to think about arguments from both sides. Accordingly, experimental group students showed a significant improvement in their understanding of "counterargument" in different elements about knowledge of argumentation, structure knowledge, language knowledge, and process knowledge, and rhetorical knowledge, after the genre-based writing instruction.

In the comparison group, students' awareness of "counterargument" also showed positive changes in different elements about knowledge of formal and process elements after the conventional writing instruction; comparison students' comments on "counterargument" and "evaluation", in the structural element, also increased to a small degree. At Time 1, most comparison group students referred to structural features with general statements of "introduction-body-conclusion" (49%) without any specific reference to argument or counterargument. At Time 2, the frequency of the code- "claim-counterargument claim-evaluation" (CCE) increased from 15% to 20%; and the code- "introduction-thesis-argument-counterargument-evaluation" (ITAC) appeared with a frequency of 3%,, suggesting that a small number of comparison group students displayed their knowledge about the structure of discourse move about "counterargument" at Time 2.

In the process knowledge dimension, the code- "classifying" had increased significantly from 36% to 48% at Time 2;   moreover, at Time 2, the substance analysis of this code suggested that comparison group students' comments on their knowledge about argumentative writing procedures included more examples of "classifying information in pros and cons". The change was evident in their focus on 'claim' and "counterargument claim" after the conventional writing course. In summary, there are a series of changes in comparison students' argumentative knowledge analysis in "counterargument" structure from Time 1 and 2, but their development was less than that of the experimental group.

6.2.4 Summary

This section summarised the profile of EFL students' changes in knowledge about argumentation. With evidence from the analyses about three aspects (numeric, substance, and reflections), it can be concluded, tentatively, that participants displayed their knowledge about different elements specific to the argumentative genre after instruction. The changes were more evident in the experimental group than the comparison group. Two patterns of students' positive changes in the genre knowledge were detected: participants had more essential knowledge of argumentation about each component after their writing instruction; students' descriptions of the use discrete elements of knowledge in argumentation showed a tendency to be aggregated after the writing instruction.

6.3 Effects of EFL Students' Growth in Knowledge about Argumentation on Their Writing

The general summary of the development of participants' writing performance in argumentation, including discourse move structure, writing substance, and overall writing quality, provided earlier in the chapter provides the basis of an examination of the relationship between students' changes in knowledge and their writing performance in argumentation (see section 6.3.1). A summary of students' writing performance

follows, to explore the mediation of students' genre knowledge on their writing performance. Section 6.3.2 shows the consistency between the characteristics of students' knowledge development and their writing performance improvement in argumentation.

6.3.1 Overview of Students' Writing Development

The interpretation of the profile about EFL students' writing development in argumentation in this study followed the results in Chapter Five by measuring the numeric changes into three dimensions: Discourse move structure, writing substance, and overall writing quality in argumentation (see Table 6.2). These numeric changes are summarised into three levels: "significantly positive shift" (+) ($p < .005$), "positive shift" (0/+) ($p > .005$), "negative shift" (0/-) ($p > .005$), and "significant negative shift" (-) ($p < .005$).

Table 6.2 shows the quantitative descriptions of the shifts in experimental group students' writing performance between Time 1 and Time 2. First, there is a significant increase in three elements in their discourse move structures in argumentation, including "counterargument claim", "counterargument data", and "rebuttal claim". There was also a positive shift in the discourse moves of "claim", "data", and "rebuttal data" from Time 1 to Time 2. Secondly, in the writing substance dimension, these students made a significant increase in the use of "abstract reasons" after the genre-based writing instruction, and an increase in the frequency of "make sense" reasons and "consequential" reasons. The frequency of vague reasons given by the experimental group from pre- to post-test decreased. Thirdly, the overall writing quality of the experimental group significantly increased from Times 1 to Time 2.

The writing performance of comparison group students did not improve after the conventional writing instruction as much as their experimental group peers after the genre-based writing instruction. As shown in Table 6.2, in the dimension of discourse move structure, the comparison group demonstrated a significant increase in only the "counterargument claim", although they showed non-significant increases in discourse

moves about "claim", "data", "counterargument data", "rebuttal claim", "rebuttal data" in argumentative writing. Secondly, in the writing substance dimension, comparison group students made a non-significant positive shift in "make sense" reasons and "abstract" reasons. They significantly increased from Time 1 to Time 2in overall writing quality.

Table 6.2 Summary of evaluation about students' writing performance development in argumentation

Change degree	Experimental Group			Comparison Group		
	Discourse moves	Writing substance	Writing quality	Discourse moves	Writing substance	Writing quality
+	Counterargument claim; counterargument data; rebuttal claim	Abstract reasons	Overall writing Score	Counterargument claim		Overall writing Score
0/+	Claim; data; rebuttal data	Make sense reasons, consequential reasons		Claim; data; counterargument data; rebuttal claim; rebuttal data	Make sense reasons; abstract reasons	
0/-					Vague reasons; consequential reasons	
-		Vague reasons				

Notes. + = significant positive shift; 0/+ = positive shift; 0/- = negative shift; - = significant negative shift.

6.3.2 Characteristics of Students' Knowledge about Argumentation and Their Writing Performance

There was variability between the characteristics of students' knowledge development about augmentation and their argumentative writing performance in these two groups. Generally, the development of participants' more essential knowledge about each component of argumentation showed some contributions to their writing development. In addition, the development of participants' knowledge about aggregated elements of argumentation promote their writing performance. An explanation of the variability could contribute to an understanding of the complex nature of knowledge development in argumentation and their writing performance.

6.3.2.1 Development in Essential Knowledge of Argumentation and Writing Performance Improvement

Experimental group students' development of more essential knowledge of argumentation about each component appeared to have a dramatic influence on their argumentative writing performance. The comparison group, however, remained relatively stable in their development of more essential information of argumentation about each component with non-significant change in their performance.

Particularly, the increase of experimental group students' essential knowledge of argumentation about each component appeared as their growing descriptions related to "argument", "counterargument", "evaluation", after the genre-based writing instruction. In the knowledge about structural element, more experimental students reported their structural knowledge with essential information about "argument", "counterargument", and "evaluation of argument and counterargument" at Time 2. In the language dimension, they paid more attention to the expressions of essential information about arguing, such as "reporting verbs", "words of praise and critique", and "words of evaluation". In the process knowledge section, there was evidence of more complex composing process of understanding, summering and evaluating the reasons about "argument" and "counterargument"; and, in the rhetorical knowledge dimension,

students appeared to think about what the audience thought from the "counterargument". Meanwhile, there was evidence of an improvement by the experimental group students about their argumentative writing performance from Times 1 to Time 2. There was significant variability in the discourse moves of "counterargument claim", "counterargument data", and "rebuttal claim" and the overall argumentative writing quality. That is, their argumentative genre writing improved with extensive use of discourse move structures about counterargument claim, counterargument data, and rebuttal claim; and higher grade of overall quality in argumentative writing. Thus, it can be concluded that the experimental group students' essential knowledge about the components of argumentation appeared to have mediated their improvement in the discourse move structures in argumentative writing.

Another example comes from experimental students' increased essential knowledge of argumentation about each component and their improvement of argumentative writing substance. There was evidence in the growth of the experimental group students' knowledge about various elements related to the "arguing", after the genre-based writing instruction. Particularly, their "argument" comments in the knowledge about content element increased to a greater extent; that is, students' displays of the personal stories and vague ideas about argumentative content at Time 1 showed an obvious decrease, whereas after the instruction they evidenced consideration of more logic and proper reasoning about argumentation. In the rhetorical knowledge element, experimental group students also changed positively as they focused on the logic, understandability, and reliability of the reasons after the instruction. For example, they made comments such as "work on the understandability of reasons", "address the reliability of the examples", and "make objective examples" only at Time 2; they demonstrated a positive change in "writer-reader interactions" from 26% to 38%; they made more critical analysis of their writing substance at Time 2; their "writer-reader interactions" comments progressed from "let the reader know my viewpoint", "let the reader assert my position" to "identify readers' possible claim" and "try to persuade logically". Meanwhile, there was significant variability in the writing substance of

"vague reasons", "abstract reasons", and the overall argumentative writing quality. That is, their argumentative genre writing improved extensive use of abstract reasons; and higher grade of overall quality in argumentative writing. Thus, I conclude that the experimental group students' essential knowledge about every component of argumentation appeared to have mediated their improvement in the writing substance in argumentation.

In the comparison group, students' increase in essential knowledge of argumentation about every component also appeared to be the main mediation influencing their argumentative writing performance, however, the variability is not as much as what happened I the experimental group. It is documented that comparison group students showed a growth of their knowledge related to essential information about "counterargument" in argumentative genre after the conventional writing instruction, After the traditional writing course at Time 2, their structural comments of "counterargument" and "evaluation" increased slightly: In the language knowledge dimension, they showed an increased focus on language use of "claim", such as "reporting verbs" and "attitude labels"; and in the process level, students' knowledge encompassed the information of "classifying information in pros and cons". Meanwhile, there was significantly variability only in discourse moves of "counterargument claim". Thus, it concludes that the comparison group students' essential knowledge about every component of argumentation appeared to have mediated their improvement in the discourse move structures in argumentative writing   to a limited degree.

6.3.2.2 Development in Aggregation of Knowledge about Different Elements and Writing Performance Improvement

Students' knowledge development pattern, in which the knowledge of discrete elements in argumentation aggregated, may promote their argumentative writing performance. Experimental group students' development of aggregated knowledge elements about argumentation appeared to have a dramatic influence on their argumentative writing performance. The comparison group, however, did not show as much as development

of aggregated knowledge elements about argumentation with non-significant change in their performance.

Particularly, the increase of experimental group students' aggregated knowledge elements about argumentation appeared as their more detailed descriptions of how to use different elements of knowledge in "arguing" conjointly. Specifically, the increased comments of "ITAC" in the structure level, the code of "words of praise and critique" in the language level, the appearance of "classifying, grouping, and evaluating reasons from argument and counterargument" in the process level, and the increased comment-"think about audience' evidence of argument and counterargument" in their rhetorical knowledge indicated that "counterargument" appeared in experimental students' knowledge about structure element, language element, process element, and rhetorical element at Time 2. Meanwhile, there was significant variability in their discourse moves of counterargument claim and counterargument data. Thus, it can be concluded that students' knowledge development patterns, in which the knowledge of discrete elements in argumentation aggregated, may promote their argumentative writing performance.

In the comparison group, the "counterargument", there was some evidence of gains in aggregated knowledge after the traditional writing course. Meanwhile, they showed limited opportunities to develop their discourse move for "counterargument". Specifically, the increased "ITAC" comments in the structure level, and the emphasis on "classifying information in pros and cons" in the process level showed that "counterargument" was focused on only in the structure and process levels with comparison group at Time 2. Their discourse moves only showed statistically significant improvement in counterargument claim.

Another example of the relationship between students' aggregated knowledge elements and writing performance development comes from the consistent development between students' knowledge aggregation and writing substance improvement in both the experimental and comparison groups. In the experimental group, participants' knowledge model of discrete elements in argumentation showed an aggregated movement about pursuing "arguing" from Time 1 to Time 2. In other words, the

meanings of "arguing" collectively interacted in students' structure knowledge, language knowledge, process knowledge, and rhetorical knowledge for the experimental group at Time 2. Accordingly, these students showed a significant increase in the number of "abstract reasons" and positive changes in writing reasons of "make sense" and "consequential". For the comparison group after the conventional writing course, the aggregated knowledge of different elements led to some gains in understanding of "arguing" in a limited degree. They appeared, therefore, to have limited opportunities to develop their writing substance in argumentation. Specifically, the meaning of "arguing" was focused on only in the structure and content levels by the comparison group at Time 2. Consequently, their writing substance only made a non-significant increase in the number of "abstract reason" responses and a significant increase in the reasons of "make sense" and "consequential".

6.3.3 Summary

Two characteristics of the students' knowledge development improved writing performance. First, students' essential knowledge of argumentation about the components appeared to have mediated their performance in argumentative writing. Secondly, how they used these aggregated elements of knowledge about argumentation appeared to have contributed to their improved writing performance in argumentation.

6.4 Summary

This chapter reported the characteristics of students' changes in their knowledge of argumentation from a broad perspective, and further investigated how these changes in knowledge may mediate writing performance. The nature of students' obvious changes in genre knowledge lent support to the view that two patterns of knowledge development helped to improve students' writing performance. In particular, students' essential knowledge about each component of argumentation and their aggregated knowledge elements about argumentation appeared to have mediated their performance in argumentative writing.

CHAPTER SEVEN

GENERAL DISCUSSION

7.1 Overview

This chapter, which discusses the changes in Chinese EFL students' writing development in argumentation that occurred in the writing instruction, captures the complex nature of EFL students' writing development. It evaluates the data on EFL students' knowledge and writing performance in argumentation within a series of writing practices using the genre-based method and conventional method through the classroom-based instruction. The discussion will be divided into three sections: 1) Changes in participants' knowledge about argumentation; 2) changes in students' writing performance in argumentation; 3) effects of students' increase in knowledge about argumentation on their writing. These discussions will center on marked and interesting findings in this study, with a particular attention on how my findings compare with previous literature and relevant theoretical propositions discussed in Chapter Two.

7.2 Changes in Students' Knowledge about Argumentation

This section discusses the changes in EFL students' knowledge about argumentation before and after different writing instructions between the genre-based writing method and the conventional writing method. The findings of student knowledge are derived from the questionnaires and interviews.

It aims to answer the first set of research questions:

1. How did experimental and comparison groups change respectively in students' knowledge about argumentative writing (argumentation) after different writing

interventions?

2. Did the experimental and comparison groups differ in students' knowledge about argumentative writing (argumentation) about the elements (formal knowledge, process knowledge, and rhetorical knowledge) in the post-test? If so, what were the reasons?

3. Did the high writing-proficiency and low writing-proficiency students differ in their knowledge about argumentative writing (argumentation) about the elements (formal knowledge, process knowledge, and rhetorical knowledge) after different writing instructions?

The changes in EFL Chinese students' knowledge about argumentation can be explained by Vygotsky's model of ZPD, mediation, and internalization (Vygotsky & Cole, 1978). The changes in students' knowledge about argumentation were evident after either a genre-based writing approach or conventional writing approach (mediation) and students' reflection and writing proficiency (internalisation).

The following subsections summarise the results and discuss them in comparison with previous literature in the field discussed in Chapter 2. There are two subsections: 1) Patterns of changes in students' knowledge about argumentation, 2) factors affecting students' knowledge development in argumentation.

7.2.1 Patterns of Changes in Knowledge about Argumentation

Informed by Tardy's (2009) genre knowledge framework, this subsection illustrates the changes of student writers' knowledge about the formal element, process element, and rhetorical element in argumentation before and after the writing courses. It discusses the complex system of Chinese EFL students' knowledge about argumentation, including current state and changing process. This discussion will be divided into three sections: 1) Current state of Chinese EFL students' knowledge about argumentation, 2) changes in students' knowledge about different elements about argumentation, 3) characteristics of students' increasing knowledge about argumentation. The changes in experimental

and comparison groups' knowledge about three elements, formal, process and rhetorical, in argumentation are presented in Figure 7.1.
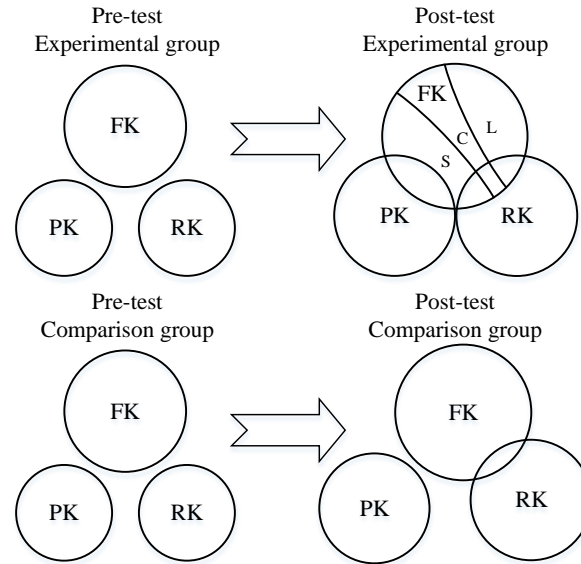
Figure 7.1 Changes in students' knowledge about argumentation after different writing instructions
Notes: FK: Formal Knowledge; PK: Process Knowledge; RK: Rhetorical Knowledge; S: Structure Knowledge; C: Content Knowledge; L: Language Knowledge

7.2.1.1 Current State of Students' Knowledge about Argumentation

Overall, Chinese EFL undergraduate students' knowledge about argumentation demonstrated only vague descriptions of the different elements in terms of formal, process, and rhetorical levels in the pre-instruction stage. Similarly, other studies in L2 contexts have reported that most L2 novice students had little genre knowledge before any intervention (Gillespie, Olinghouse, & Graham, 2013; Tardy, 2009; Yasuda, 2011; Zhang, 2013). As Gillespie et al. (2013) pointed out, the novice L2 writers in their study gave only general descriptions of the genre of persuasion, such as idea generation and content organisation. Tardy (2009) and Yasuda (2011) likewise argued that novice student writers in the ESL and EFL contexts exhibited a low level of knowledge about specific genres which did not display formal knowledge correlate with rhetoric awareness. Gillespie et al. (2013) and Zhang (2013), however, investigated novice student writers' genre knowledge about different elements and reported that novice

students demonstrated relatively rich formal knowledge but limited knowledge of process and implicit rhetoric elements. Similarly, in the current study, Chinese EFL student writers had little knowledge in argumentation at Time 1; that is, their awareness of discourse moves, language features, content, process, and rhetorical aims in argumentation was limited to general rules in writing. Their knowledge of the formal elements about argumentation was relatively robust in comparison with other elements; they appeared to have no knowledge about interactions of different elements of argumentation. The reason may be that participants in this study experienced their English education in China where they were not required to write in the authentic English language contexts. In such a context, novice students may have difficulty in realising the purpose and awareness of authentic audiences for their writing in a specific genre. Furthermore, writing has been taught only as a supplement to the major English courses at the university for a long time (Zhang, 2008, 2013, 2016). As Chinese undergraduate students are unlikely to have had the opportunity to explore the knowledge of interconnected components of a specific genre in detail, it is not surprising that participants in this study had limited genre knowledge in argumentation is divinable.

7.2.1.2 Changes in Students' Knowledge about Different Elements in Argumentation

To trace the complex changes of students' knowledge about argumentation, 118 students' comments on their knowledge about three elements in argumentation during different writing instructions were analysed. The following section include two parts: changes in students' knowledge about the formal element; changes in students' knowledge about the process and rhetorical elements.

Formal Knowledge

Formal knowledge refers to students' understanding of textual features of a specific genre, such as conventional structural moves, lexico-grammatical features, and content description (Tardy, 2009). Many previous studies have explored the changes of students' formal knowledge, such as structural and language patterns, and content descriptions

Some researchers have reported that their participants were more confident in their development of knowledge in structural and language elements about a specific genre after the explicit textual modeling writing pedagogy (Cheng, 2008; Devitt, 2015; Negretti & Kuteeva, 2011; Wette, 2017). Similarly, in this study, students' formal knowledge increased in both experimental and comparison groups after specific writing instruction. Participants in both the experimental and comparison group demonstrated an increase in their knowledge about structure and language knowledge about argumentation. In the experimental group, participants made more appropriate adoption of newly acquired knowledge of the argumentative genre. Their descriptions of structural and language knowledge, specifically, the codes- "ITAC", "TEC", "reporting verbs", "words of praise and critique", and "words of evaluation", which contained more detail information in "arguing" provided evidence of growth at Time 2. In the comparison group, some participants' greater considerations of structural elements of argumentation, suggested more awareness of the practical application of language elements, specifically, the codes- "ITAC", "TEC", "reporting verbs", "attitude labels", and "conjunctions"   specific aspects of argument, provided evidence of some development after the conventional writing approach.

Second, several studies argued that the gains of students' knowledge about the content element of specific genres were challenging (Wette, 2017; Tardy, 2009; Kutteva & Negretti, 2016). As Wette (2017) posited, students' understanding of the structural and language knowledge was not difficult with genre-based instruction, whereas acquiring an understanding of content knowledge put greater demands on students' cognitive ability because it requires an awareness beyond single textual level. The findings in this research are consistent with Wette's claim, in that experimental group showed an increase in knowledge about structural and language elements in argumentation through the quantitative analysis of frequency and the analysis of the substance in the comments. Students' knowledge of content, however showed less change than for structural and language knowledge. They had little meaningful change in the interaction between content knowledge and rhetorical awareness based on the

substance analysis after the genre-based writing course. Although, there was only a small increase in frequency for the experimental group, the changes in substance of the content level were meaningful when compared to those at Time 1. At Time 2, they demonstrated their content knowledge about argumentation with comments such as "citing accurate data", "the readable reasons', and "critique authorities".

A notable contribution of this study is the finding, in the comparison between experimental and comparison groups, of changes in students' knowledge about the formal element using a quasi-experimental method. First, there was greater evidence of change in knowledge interaction between the formal element and the rhetorical element in the experimental group than the comparison group after their respective writing instruction. The descriptions of aggregated knowledge of the formal element and the rhetorical elements is a high-level knowledge form. As Yasuda (2015) argued students' acquisition of language and structural knowledge without rhetorical awareness was not useful. Subsequently, Wang (2017) argued that only when linguistic and structural elements are integrated with rhetorical awareness in a specific genre can students use the knowledge about these two elements in their writing. In this study, the genre-based approach contributed more to students' knowledge interaction between formal and rhetorical elements than the conventional method. The changes in EFL experimental group students' formal knowledge about surface features were closely related to their rhetorical awareness in argumentation at Time 2. Specifically, they made more appropriate selections of the structural element in argumentation, argumentative lexis, and content descriptions for arguments after genre-based instruction. The comparison group student, however, maintained their choice of the structural element with consideration of language use with accurate rules, and content descriptions with the purely personal points of reference after the conventional writing teaching.

Second, EFL students in the experimental group showed more critical reflection on their acquired formal knowledge. That is, they compared newly acquired knowledge and prior knowledge at the formal level, including the structure of discourse moves about "counterargument evaluation"; language features of "arguing", "persuasion", and

"evaluation"; and content considerations about writer and audience in argumentation. Critical reflection about formal knowledge rarely appeared in the comparison group after the traditional approach; it was focused only on general rules about language use in their writing. Critical reflection ability is claimed as an advanced cognitive strategy, as it is considered as a trigger for knowledge development. As MacDonald (1994) argued, there was a gap between new genre knowledge and prior knowledge, and students' reflection in a specific community which allowed them to transfer from an initial stage to a higher stage of development. Their reflection on the formal knowledge, therefore, of either relying on their previous knowledge or embracing new knowledge gave students opportunities to reconstruct and develop their formal knowledge in a specific genre.

Process and Rhetorical Knowledge

Process knowledge refers to students' statements of their composing processes in achieving the planned rhetorical action of a writing task (Tardy, 2009). The Rhetorical knowledge includes students' understanding of the intended purposes of a genre in a local context, a sophisticated awareness of audiences' beliefs of a genre in a local context, and the awareness of situated variables of a genre in different social contexts (Tardy, 2009). Many previous studies have explored the changes in students' process knowledge (Benesch, 1993, 1995; Huang, 2014; Jwa, 2015) and rhetorical knowledge (Huang, 2014; Uzun, 2016; Wette, 2017). As mentioned in the literature review, most studies have investigated the changes in postgraduate students' process and rhetorical knowledge within project-based writing context. Fewer studies, however, have tracked the development of undergraduate students' process and rhetorical knowledge in a classroom-based context. As a result, the changes in students' rhetorical and process knowledge, in this study, in a classroom context, will be discussed in relation to previous studies to a limited degree.

First, in this research, both experimental and comparison group students demonstrated limited changes in process knowledge with simple procedures to more complex procedures after their classroom-based writing instruction. At Time 2, the

experimental group students identified a complex composing process of argumentation which included understanding, summarising, gathering, and evaluating, whereas at Time 1 their composing process was only "dividing" and "grouping". In the comparison group, students changed from focusing on a simple process of "gathering" at Time 1, to a more complex composing process of "classifying", which included classifying and presenting at Time 2. The limited development of the knowledge about process elements aligns with the findings of Benesch (1995) and Jwa (2015) investing students' procedural knowledge development after English writing courses at the college level. Both researchers argued that undergraduates' process knowledge was hard to improve in a classroom-based writing intervention because L2 students' process knowledge about argumentation was slow to change. Beaufort (1999) and Casanava (2002) investigated the relationship among the changes in writers' process knowledge, their writing purposes, and their experienced practices, and argued that L2 writers' process knowledge development was closely related to their interests and prior practices in writing, and that it did not improve because was largely overlooked in writing instruction. It has also been claimed that students' writing assessment paid more attention to surface features of the texts rather than the procedures students experienced during the writing task (Benesch, 1993, 1995). Because the EFL students in this study, perceived writing as a test, and that the purpose of writing is to get good scores based on grading criteria, slow development of process by EFL students' slow growth of process knowledge is not unexpected.

Second, this research suggested that both experimental and comparison groups perceived their process knowledge about argumentation from the surface textual level, structural, language, and content organisation, rather than the social level before, and after, the writing instruction. Huang (2014), however, reported that in her case study project-based context, students came to understand the writing task as a recursive process of social activity. The data in my study indicate that neither the genre-based nor the conventional writing practices were effective in improving EFL students' process knowledge with socialised thinking. One explanation may be EFL students' limit

cognitive ability, or that some writing experts and teachers are expecting their students to engage highly with the genre; in the EFL context, implementation of the genre in writing is difficult. Nonetheless, I recommend encouraging EFL college freshmen to be given instruction about general genres even though they are not in the professional field at this time, and that this needs to be followed with instruction in discipline relevant genre at a subsequent stage.

Further analysis of the data from my study revealed a greater positive effect of the genre-based writing treatment on the experimental group students' knowledge of the interaction between formal and process levels of argumentation, than the knowledge of the comparison group. Specifically, with experimental group students, the composing code - "evaluation" showed a marked increase. Evaluation encompasses complex knowledge about understanding, summarising, gathering, and evaluating of argument and counterargument, which related closely to their description of discourse moves of "ITAC" and "TEC" after their genre-based instruction. The comparison group students, however, increased comments on "gathering" and "classifying" after traditional writing teaching, showed no apparent correlation with their discourse move descriptions of "IBC". These findings are consistent with Jwa's (2015) argument that procedural knowledge is derivative, and its development is highly coordinated with other knowledge dimensions.

Rhetorical knowledge, as previously noted, includes students' understanding of the purpose of a genre in a local context, a sophisticated awareness of audiences' beliefs, and the awareness of situated variables in different social contexts (Tardy, 2009). In this study, after the genre-based writing instruction, experimental group students indicated some positive change in their knowledge about the intended purposes of argumentative writing and audience awareness about argumentation. However, their change in knowledge about the rhetorical element did not improve as much as their change in knowledge about the formal element. This finding aligns with what Yasuda (2011) and Negretti (2015) who report on L2 students' development about rhetorical awareness;

they supported view that change in L2 students' knowledge writing in a general way to a communicative writing would be difficult.

The findings in my study also support the argument that the genre-based practices not only promote students' knowledge about a focus on the aims in the writing and the awareness of audience in a specific community but also facilitate their integration of rhetorical awareness with other knowledge elements. The comparison group students, receiving no such genre knowledge instruction, had difficulty in making equally effective changes in the rhetorical knowledge element. These findings illustrate the developmental patterns of students' rhetorical knowledge proposed in previous studies (e.g., Beaufort, 1999; Ellis, Johnson, Henry & Roseberry, 1998; Huang, 2014; Yasuda, 2011), in which L2 writers' rhetorical knowledge improvement correlated positively with organizational structures (Ellis, Johnson, Henry & Roseberry, 1998), language knowledge (Yasuda, 2011), and process knowledge (Beaufort, 1999; Huang, 2014).

7.2.1.3 Characteristics of Students' Developmental Paths in Knowledge about Argumentation

Previously discussed changes in students' knowledge concentrated on three elements, formal knowledge (structural knowledge, language knowledge, content knowledge); process knowledge; and rhetorical knowledge. This section will discuss the characteristics of students' developmental paths in knowledge about argumentation from an integral angle.

First, in my study, although most EFL students' knowledge was more evident in the formal element and less evident in the process and rhetorical elements, some experimental group students demonstrated some progress in their knowledge about argumentation with each element. Similarly, both Wette (2017) and Huang (2014) indicated that L2 participants' knowledge showed a full-scale change over time after a genre-based writing course.

Second, the findings in my study also demonstrated that the change in students' knowledge about argumentation was an ongoing and interactive process, in which

different knowledge elements interact with each other. Previous studies have investigated the interactive process of knowledge about different elements in the L2 context (Yasuda, 2015; Wang, 2017; Jwa, 2015). Yasuda (2015), for example, concluded that L2 students evidenced development in their genre knowledge, displaying their knowledge about the structure of discourse moves and language features with greater rhetorical consciousness after the genre-based writing instruction. Wang (2017) also reported that participants expressed their knowledge about the language features and content choices appropriate to the purpose of genre after the writing course. Findings from my study are consistent with previous studies in that participants demonstrated knowledge of the interconnection between the formal element and the rhetorical element in argumentation; the majority of gains in students' knowledge related to the interactions between structural / language elements and rhetorical element. In addition, some of the experimental group students indicated development of knowledge of interaction between the content element and the rhetorical element. As Wette (2017) commented, the interactive movement of students' knowledge about different elements concentrated on two dimensions, formal and rhetorical elements. As well as these two elements, my study found that the genre-based approach contributed to students' knowledge interaction between formal and process elements to some extent. The result supported Jwa's (2015) argument that procedural knowledge is derivative, and its development is coordinated with other knowledge dimensions.

Thirdly, many previous studies have explored the role of such knowledge elements on the growth of students' knowledge (Beaufort, 1999; Ellis, Johnson, Henry & Roseberry, 1998; Huang, 2014; Lingard & Haber, 2002; Tardy, 2005). Ellis et al. (1998) asserted that students heightened rhetorical knowledge in a specific genre could lead to an increase in their knowledge about various elements. In addition, Huang (2014) and Beaufort (1999) argued that the development of rhetorical knowledge in similar genres led to the growth of knowledge about other elements in interconnected genres. The findings in the present research confirms previous studies; that is, the changes, at Time 2, in the experimental group students' formal knowledge about surface features were

close related to their rhetorical awareness in argumentation In addition, some researchers have explored the effect of the changes in students' formal knowledge on other elements. Lingard and Habers' (2002) study argued that writers' excessive focus on formal knowledge may lead to their lack of knowledge about other elements, such as rhetorical knowledge and process knowledge. Data from the current study indicated that the comparison group showed rapid changes in their formal knowledge but few changes in other knowledge elements after the writing course.

In conclusion, the increasing progress of Chinese EFL students' knowledge is comprehensive and complex in this study. The interaction among different knowledge elements promotes the changes in students' knowledge. Knowledge about the rhetorical element works as a key role in students' knowledge growth about argumentation.

7.2.2 Factors Influencing Students' Knowledge Change

The factors influencing the changes in students' knowledge will be discussed in this section from a Sociocultural Theory (ST) perspective. Students' knowledge about argumentation after writing instruction can be explained by mediation, and internalisation (Vygotsky & Cole, 1978). That is, students' knowledge changes in argumentation were influenced by the genre-based writing approach or conventional writing approach (mediation) and students' internal factors (internalisation).

7.2.2.1 Effects of Writing Intervention

A key contribution of this study is the use of quasi-experimental research to focus on the effect of genre-based writing practices on students' knowledge. Genre-based textual modeling and genre knowledge guided practices as the mediation were identified as two effective instructional processes. As Yasuda (2011) pointed out, genre-based textual modeling is a type of instructional strategy, in which teachers analyse textual models in a specific genre, encourage students to demonstrate their model analysis abilities in various contexts, and help students build their personal writing model. A number of researchers have examined the changes in L2 students' genre knowledge during genre-based textual modeling and have argued that this type of intervention can lead to

students' developments in their genre knowledge (Ellis, Johnson, Henry & Roseberry, 1998; Kuteeva & Negretti, 2016; Wang, 2017; Yasuda, 2011). For example, Kuteeva and Negretti (2016) and Yasuda (2011) found that participants made positive comments about teacher-led genre-based textual modeling.

The participants' reflections in the current study suggest that the experience of teacher-led textual modeling enhanced the experimental group participants' knowledge about argumentative writing, especially in the formal element. For example, Lily, Hong, and Rose similarly reflected on the effectiveness of the teacher-led textual modeling leading to their gains in formal knowledge about argumentation: Lily believed that the process of textual modeling would inevitably improve her structural understanding in argumentation; Hong felt that her language knowledge about argumentation developed because of the textual modeling practices. Rose reported that the teacher-led textual modeling led to her consideration of audience and the combination of structural and rhetorical knowledge in argumentative writing. These findings suggest that teacher-led textual modeling can be considered as a contextual factor, which promotes students' change from novice learners to mature learners in a specific genre (Yasuda, 2011; Negretti, 2015). The findings of this study also found that there were relatively few reflective comments on the knowledge about content and process elements when compared with other elements.

Secondly, the effects of teacher-guided analysis of exemplars with questions about different knowledge elements on the changes in students' knowledge were marked in the experimental group. In other words, some participants' reflective comments indicated that the teacher-led analysis of text exemplars increased their knowledge about argumentation. They mentioned, repeatedly, that the experience of teacher-guided analysis of exemplars with questions about different knowledge elements improved their knowledge of the interaction between different elements, boosted their writing confidence, and encouraged their genre awareness, led to a high level of L2 writing. As Wette (2017) pointed out, genre-guided analysis of exemplars, with questions about different knowledge elements, is one kind of teaching tactic in which teachers use

questions about formal features, particular procedures, and rhetorical aims in specific genre in analysing the exemplars. Wette (2017) and Yasuda (2015), after examining the changes in L2 students' genre knowledge during teacher-guided analysis of exemplars with genre questions, argued that this type of intervention contributed to the development of students' genre knowledge. Yasuda (2015), for example, reported that EFL participants made positive comments on the teacher-guided genre-related questions. Wette (2017) also reported that L2 students listed several benefits about their gains from activities of the genre-related questions.

The intervention group participants' reflection suggested that teacher-guided analysis of exemplars with genre knowledge questions boosted their knowledge of the interaction among various elements in argumentative writing. Lily and Bai, for example, made positive comments about the genre knowledge-based analysis of exemplars: Lily claimed that the teacher-led questions improved their knowledge of integration of the structural level, language level, and rhetorical level in argumentation; Bai, similarly, argued that his content knowledge and language knowledge improved consistently after the teacher-led genre knowledge questions.

In conclusion, this study aligns with previous studies' findings, which concluded that the teacher-led genre knowledge-based exemplars' analysis can be considered as an effective instructional intervention. The findings of this study also found that students' comments about their knowledge of the interaction between elements focused only on formal knowledge and rhetorical knowledge, and that there was little change in references to process knowledge.

7.2.2.2 Effects of Reflection

In my study, contextual factors of genre-based instructional appeared to influence change in students' knowledge through the mediation of students' internal variables. Previous studies reported that some writing approaches influence the development of participants' genre knowledge through the mediation of self-reflection (Hansen, 2000; Wang, 2017; Wette, 2017), and that L2 students' reflections on their existing knowledge, and their awareness of what they need to know, can greatly influence their genre

knowledge. Wette (2017), for example, argued that students' metacognitive awareness and reflections on their current knowledge and their learning needs assisted their knowledge development of the genre of the literature review.

In this study, students' reflective comments on argumentation most frequently identified themes in argumentation, including their need to develop their previous knowledge, their changed perceptions about the features of a quality example of the genre, and the challenges they faced as novice student writers. The experimental group students' self-reflections after the genre-based writing instruction appeared to exert a strong influence on the changes in their knowledge genre of argumentation. For example, several students, Hong, Lan, Bai, considered their pre-instruction formal knowledge, rhetorical knowledge, and process knowledge in argumentation had been vague and limited. Hong noted that she lacked awareness of the structure of argumentation and had a misconception that it had only three parts (i.e. introduction, body, and conclusion). Lan and Bai admitted having little understanding of language knowledge or consideration of content in argumentation. Lan and Hong identified that, before the writing course, they lacked knowledge of the procedures for constructing the argument, or the need to consider the author and audience of the text for argumentative writing. Furthermore, several students also pointed out that their knowledge of argumentation, after the genre-based writing instruction, was more comprehensive and specific. Lily and Hong indicate that they were aware that their formal knowledge and language knowledge needed to be closely connected with argumentation. With regard to the growth of their process and rhetorical knowledge, Rose and Lily stated that they had developed an awareness of argumentative purposes, that is, they needed to use procedures in their writing such as, - "read and understand the prompt, summarise the basic arguments in the reading, classifying and gathering resources, and evaluated these things from argument and counterargument viewpoints" (Lily), and be aware of the readers- "the use of convincing evidence to persuade someone" (Rose). Participants in the comparison group, however, after the conventional writing instruction, did not show any obvious self-reflection on their knowledge in argumentation. In conclusion, the

experimental group students showed more ability to reflect (in the control level) on their knowledge of argumentation than comparison group students at Time 2.

7.2.2.3 Effects of Writing Proficiency

Students' L2 writing proficiency refers to non-native speaker writers' ability in expressing themselves in English writing (Cumming, 2016). Many previous studies have suspected that the effects of L2 students' proficiency (e.g., language) or writing proficiency may affect the changes in their knowledge about different elements of formal and rhetorical dimensions in varying degrees (Kuteeva & Negretti, 2016; Yasuda, 2015; Huang, 2014). For example, while Kutteva and Negrettis' (2016) argued that L2 low language proficiency students can possess formal knowledge in a specific genre after the genre-based practices, Huang (2014) suspected that limited English proficiency was one of the main obstacles to students developing their knowledge about the rhetorical element. Yasuda (2015) similarly pointed out that L2 students' language proficiencies would affect their change in, and knowledge about, formal rhetorical elements.

An important finding, in this study, is that the genre-based approach contributed to the changes in both high- and low-proficiency students' knowledge about the formal element. In other words, EFL undergraduate students' knowledge about surface features in the text was closely related to their rhetorical awareness, in an argumentative genre, in the experimental group at Time 2, regardless of their writing proficiency levels. My finding seems in line with Kutteva and Negrettis' (2016) conclusion that L2 students with low language proficiency can possess formal knowledge after the genre-based instructional practices. Although their study was based on a L2 natural science context, this result appears to apply to the EFL background in relation to argumentation.

In this study, although both experimental high- and low-group students displayed some improvement in formal knowledge in argumentation, their content choices of arguing and rhetorical understanding in the argumentative genre appeared to be related to the L2 students' differing writing proficiencies. That is, experimental high-proficiency students' descriptions about content evidence were closely related to

rhetorical awareness of argumentation, such as "critique authorities", "citing accurate data", and "readable reasons", which emphasises the purpose of argument, the accuracy of argument, and their relationship with the reader. The low writing proficiency students tried unsuccessfully to evaluate both argument and counterargument to construct their content in arguing. These results indicated that the marked improvements in content knowledge and rhetorical knowledge were apparent after the genre-based instructional approach in high writing proficiency group rather than the low-proficiency group. Therefore, in this study it appears that students' different writing proficiencies influenced the changes in their knowledge about rhetorical and content elements.

7.3 Effects of Treatment on Students' Writing Performance

This section first discusses the quasi-experimental intervention, which provides findings on the changes of EFL students' writing performance in argumentation with a comparison between experimental and comparison groups that cannot be obtained from the single group surveys, widely used by previous researchers. This section also discusses the effectiveness of genre-based writing instruction on the changes in Chinese EFL undergraduate students' writing performance in argumentation and the influence of L2 students' different writing proficiencies on their writing performance. The findings of student' writing performance are derived from the written texts.

It aims to answer the second set of research questions:

1) How did the experimental- and comparison- group students' writing performance in argumentation change in terms of discourse moves, writing substance, and overall writing performance after the writing courses?

2) How did the high -proficiency and low -proficiency students differ in the discourse moves, writing substance, and overall writing performance after the writing courses?

The following subsections review the findings of the quasi-experimental study, reported in Chapter Five, in comparison with the previous research literature in the field as discussed in Chapter 2.

7.3.1 Effects of Genre-Based and Conventional Writing Instructions

This section discusses the changes in students' writing performance in argumentation in a specific situation, which is an EFL classroom as a result of genre-related instruction or conventional instruction). Students 'writing performance in argumentation after two different writing instructions will be compared in three aspects: 1) Students' discourse moves in argumentation; 2) students' writing substance in argumentation; 3) students' overall writing quality in argumentation.

7.3.1.1 Discourse Moves

Some researchers have examined the changes in L2 students' discourse moves in their writing after the genre-based writing instruction by comparing their writing texts before and after the intervention (Ellis, Johnson, Henry & Roseberry, 1998; Cheng, 2007, 2008). Their conclusions about the development of L2 students' writing move structure were inconsistent. Ellis et al. (1998) investigated EFL students' awareness about discourse structures in specific genre and discourse moves in their writing and found that the explicit genre-based instruction enhanced students' awareness of discourse structures, while no significant increase was observed about their discourse moves in the writing. Cheng (2007, 2008) only reported students' positive shifts in discourse moves after the explicit genre-based activities, that is, the generic features awareness has successfully transferred into their discourse structural moves in writing in the instruction genre and evaluation genre. Cai (2016) also reported that, the genre-based writing intervention (a combination of ESP and SFL genre-based method) she employed in her study, enhanced EFL students' discourse moves to a small degree. The inconsistent findings of the changes in L2 students' discourse move structure after the genre-based instruction made it imperative to explore the nature of their development in the writing moves.

This study is one of a few that have investigated changes in students' discourse moves in their writing with both experimental and comparison groups in the classroom-based writing context. These two groups showed different changes in their discourse moves in argumentative writing after differing writing instructions. The experimental

group students showed statistically significant increases in the discourse steps, including counterargument claim, counterargument data, and rebuttal claim in their argumentative writing after the genre-based writing instruction. The comparison group students, however, did not improve as much as their experimental group peers in their discourse move structure about argumentation after the conventional writing instruction with a significant increase in only the discourse moves about counterargument claim. The findings from this study, therefore, indicated that the genre-based approach contributed to EFL students' discourse moves more than the conventional writing method. The development of students' discourse moves in their writing is tip of the iceberg above the surface, and students' knowledge about different elements in a specific genre, below the surface, needs to be explored. For example, Cheng (2008) noted that his participants used rhetorical awareness quite consciously in her writing, and that this promoted the development of their writing moves. Gentil (2011) also suggested that students' successful realisation of discourse moves in their writing also meant a high-level perception of sociocultural understanding in the discourse organisation for students to be able to apply knowledge fluently in their writing. She further argued that understanding of surface writing features was of little help in knowledge application, and that the participants were at various stages of knowledge about elements, which influenced their writing performance.

7.3.1.2 Writing Substance

In the exploration of the development of students' writing substance aspect, some studies have investigated the changes in L2 students' writing content in different genres after the genre-based approach and found similar results (Schleppegrell, 2006; Ryshina-Pankova, 2010; Byrnes, Maxim, & Norris, 2010). Schleppegrell (2006) demonstrated that teacher-guided textual analysis was useful for helping ESL students to produce effective abstract arguments. Ryshina-Pankova (2010) also concluded that the genre-based activities enabled writers to create a rhetorically successful genre with abstract substance in their writing.

This study demonstrated that the genre-based approach contributed to EFL students' writing substance more than the conventional writing method. It investigated students' change in their writing substance in the classroom using quasi-experimental research with experimental and comparison groups and found that experimental group students' writing substance increased more than the comparison group, and that argumentative reasons developed from individual ideas to more abstract and functional statements after the traditional writing method. The development of students' writing substance in their writing showed as the surface evidence, but the situation 'below the surface' of students' knowledge about different elements in a specific genre needs to be explored.

For the developmental nature of students' writing substance, Byrnes et al. (2010) inquired into the relationship among genre knowledge and awareness, writing substance, and grammatical metaphor; they argued that L2 learners' positive rhetorical awareness contributed to the writing substance positive change from vague to abstract after the genre-based instruction. Likewise, in my study, experimental students' improvement in writing substance from vague to abstract may be the result of the changes in their knowledge of the elements in argumentation after the genre-based instruction.

7.3.1.3 Overall Writing Quality

In this study the experimental group made greater improvements in overall writing quality about argumentation than the conventional group after the genre-based writing method students' overall writing quality about argumentation was evaluated from six aspects which included content inclusion, coherence, audience awareness and purpose, language resources for achieving the purpose, vocabulary and grammar, and mechanics. The finding is valuable as prior studies' writing rubrics for measuring students' overall writing quality improvements before and after the genre-based intervention were limited with only partial measurements, such as vocabulary, language use in the genre, or rhetorical structures (Silvia, Thomas, Ryan, 2018; Yasuda, 2011, 2015). These studies mainly focused on the improvement of students' overall writing quality from the language level and achieved similar results showing L2 students' growth of language use in the writing after the explicit genre-based instruction.

My study explored the effects of the genre-based approach in the classroom, with both experimental and comparison groups, investigating students' changes in overall writing quality from multifaceted dimensions, including content, rhetorical, language use, and structures. The use of a comparison group confirms the students' improvement after the genre-based instruction. The development of students' overall score about argumentative writing is their improvement in surface appearance, while changes in students' knowledge in a specific genre can be used to explore their writing development below the surface. For example, Silvia et al. (2018) and Yasuda (2015) argued that students' growing knowledge about a specific genre may promote their overall writing quality; better knowledge in a specific genre may promote students' overall writing performance.

7.3.2 Effects of Writing Instructions and Role of Writing Proficiency

This research is one of a few that have explored the effects of both external pedagogical instruction and internal writing proficiency on students' changes in writing. This section discusses first the changes in students' writing performance about argumentation in relation to the two different writing instructions. Some researchers have examined the effect of genre-based writing instruction on L2 students' writing performance over time by comparing the results from their pre- and post- writing texts (Byrnes, Maxim, & Norris, 2010; Cai, 2016; Cheng, 2007, 2008; Ryshina-Pankova, 2010; Ryan, 2018; Yasuda, 2011, 2015). With the repeated measurements about the changes of students' discourse move structure (Cai, 2016; Cheng, 2007, 2008), writing substance (Byrnes, Maxim, & Norris, 2010; Ryshina-Pankova, 2010), and overall writing scores (Ryan, 2018; Yasuda, 2011, 2015), these researchers similarly concluded that genre-based writing instruction boosted L2 students' writing performance. This study showed a positive impact of the genre-based approach on students' argumentative writing development about discourse move structures of counterargument data, writing substance of abstract reasons, and overall writing quality, while the comparison group students did not improve as much as their experimental group peers after an eight-week conventional writing instruction.

This section also discusses the relationship between the students' writing proficiency and their writing performance after writing instruction. Students' L2 writing proficiency refers to non-native speaker writers' ability in expressing themselves in English writing (Cumming, 2016). There is relatively little research on the effect of students' writing proficiency on their writing development. Yasuda (2015) investigated EFL high- and low- English proficiency students' writing performance after SFL genre-based writing instruction; she argued that the writing performance, linguistics ability and overall writing quality, of high proficiency students improved more than that of the low-proficiency students. Byrnes and Sinicrope (2009) came to a similar conclusion that advanced learners showed greater increases in their writing performance about grammar use than beginners after genre-based writing intervention. Schleppegrel (2006) also claimed that expert writers had more evidence of growth in writing substance than the novice writers. In other words, they agreed that high-level English proficiency students demonstrated greater improvement in their writing performance, especially in the use of language and substance construction, after a genre-based instructional approach.

This study, which used a quasi-experimental method with experimental and comparison groups, provides the effects of students' internal writing proficiency on their development of writing performance about discourse move structure, writing substance, and overall writing quality in argumentation. In the dimension of discourse move structure, there was a statistically significance difference for the elements of counterargument claim and counterargument data between experimental and comparison high-proficiency groups. That is, the high proficiency experimental group students made greater gains than the high proficiency comparison group in the use of elements of counterargument claim and counterargument data after the writing instruction. This result is somewhat surprising because significant gap, previously mentioned, in discourse move changes between experimental and comparison groups did not exist in the element of counterargument claim. After further analysis of the writing proficiencies, the statistical differences were found in two move structures of "counterargument claim" and "counterargument data". Therefore, high writing

proficiency students will be able to draw on an enhancement in the counterargument moves, including both claim and data only after the genre-based instruction; the conventional writing method did not trigger students' focus on the new discourse move when they were habituated to their usual writing moves.

The experimental high-proficiency students showed greater increase than the other three groups in the aspect of writing substance. A possible explanation may be that high-proficiency students' low scores in writing substance in argumentation at the pre-instruction test resulted from their lack of knowledge of the requirements of the genre but not from their lack of ability in the writing. Once the contextual requirements were acquired, through the genre-based writing instruction, the high-proficiency students showed greater improvement than low-proficiency students.

There were two noticeable changes between the groups overall writing quality. First, high- and low-proficiency students' overall writing performance improved after the genre-based writing intervention. Second, the changes in high-proficiency students' overall writing growth was less than the low-proficiency students after both writing instructions. This finding suggests that the statistically significant improvement of overall writing quality for high-proficiency students during the short term of the project was hard.

7.4 Effects of Students' Development in Knowledge about Argumentation on Their Writing Performance

Section 7.2 has discussed the changes in students' knowledge of different elements in argumentation. In this section, the nature of students' growth of knowledge about argumentation from a holistic perspective will be discussed. It discusses further the effects of EFL students' development in knowledge about argumentation on their writing. The findings of students' knowledge and writing performance are derived from the questionnaires, interviews, and written texts.

It aims to answer two research questions:

1. What characteristics of students' knowledge about the elements in argumentation serve as positive changes?

2. How do these characteristics of development about Chinese EFL students' knowledge in argumentation work on their writing?

The following sections first summarises the results in Chapter Six and then discuss these results.

7.4.1 Nature of Students' Knowledge Development

This section discusses the characteristics of EFL students' development of knowledge in a specific genre by summarising the changes in EFL students' knowledge of different elements about argumentation from a broad perspective. It provides evidence that the changes in L2 students' genre knowledge have the properties of a complex system as an explanation of the complexity of the development of EFL students' genre knowledge.

In this section of the thesis, in which the focus has been on a specific aim in the argumentative genre, the specific patterns of development of students' knowledge are discussed. First, it appears that more students knew that they needed to focus on how to advance their essential information of "argument" in each knowledge element. Second, some students' knowledge of discrete elements in argumentation aggregated, including formal element, process element, and rhetorical element after the instruction. The reason may that L2 students' knowledge in a specific genre are due to dynamic interactions among different knowledge elements (Bereiter & Scardamalia, 1993; Tardy, 2009). Students' knowledge is capable of changing among different dimensions, there is a trend towards aggregation because of the interconnectedness of knowledge with different elements; a minor change in one element may affect other related elements (Gentil, 2011; Tardy, 2009).

7.4.2 Effects of Students' Development in knowledge on Their Writing

This section illustrates how the development of EFL learners' knowledge in a specific genre affected their writing performance. Many previous studies have explored the

correlation between students' genre knowledge and their writing performance (Graham, 2006; Lu, 2010; Uzun, 2017). For example, Lu (2010) and Graham (2006) examined the relationship between students' genre knowledge and writing performance and concluded that there appears to be a parallel between students' knowledge about the formal element and their overall writing scores taken from a general rubric. Uzun (2017), moreover, investigated the correlation between the development of students' genre knowledge and their improvement in writing with quantitative analysis. He found that the development of students' knowledge about how to use language in a specific genre appeared to mediate their writing performance in the specific genre. However, the patterns of the development of students' knowledge, leading to the boost of their writing performance, cannot be identified in his study because the result is not clear.

The findings in this study provide an explanation of the effects of two patterns of students' growth in knowledge about argumentation on their argumentative writing performance, which provides evidence that EFL writers has the properties of their development. First, students' performance in argumentative writing increased alongside their growth in the essential knowledge of argumentation about each component. The experimental group participants, who appeared to have more essential knowledge of "arguing" about formal and rhetorical elements than the comparison group students, performed better in writing an argumentative text, as evident in their discourse moves and writing substance. Second, students' descriptions of how to use these different elements of knowledge about argumentation appeared to have mediated their performance in argumentative writing.

L2 students' writing development, therefore, should be treated as a complex and variable construct that their writing variability sue to a complex development of students' knowledge in specific genre.

CHAPTER EIGHT

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

8.1 Overview

This final chapter first summarises the key findings of this study. It then explains the theoretical and methodological contributions of this study as well as the pedagogical implications of this research. Finally, it discusses the limitations of the study and proposes recommendations for future research.

8.2 Summary of the Major Findings

This section summarises the major findings of this research concerning the changes in Chinese EFL students' knowledge about the elements in argumentation, their writing performance in argumentation, and the characteristics of the development of students' knowledge as the catalyst for their writing improvement in argumentation. Major findings in relation to the three research questions are presented in this section.

8.2.1 Changes in Students' Knowledge about Argumentation

1. At the pre-instruction stage, Chinese EFL undergraduate student writers had little knowledge in argumentation; that is, their awareness of discourse moves, language features, content, process, and rhetorical aims in argumentation was limited to general rules in writing. Their knowledge of the formal elements about argumentation was relatively robust in comparison with other elements; they appeared to have no knowledge about interactions of different elements of argumentation.

2. The genre-based instructional approach was effective in improving students' formal knowledge of argumentation. There was also evidence of its effectiveness in

improving their knowledge about discourse moves, and language features specific to the argumentative genre, but not for content knowledge. In addition, the genre-based writing approach contributed to the development of students' knowledge of the interactions of formal knowledge and rhetorical knowledge, while there was no evidence of a similar impact by the conventional writing approach on students' development.

3. The genre-based writing instruction and convention writing instruction had very little impact on students' knowledge about the process element; that is, the experimental and comparison groups changed only slightly from simple procedures to more complex procedures after instruction. In addition, students perceived the process knowledge as only a textual organisation of structural, language, and content components; they did not acknowledge writing in a social context either before or after instruction. The genre-based writing approach, however, contributed to the development of knowledge of the interactions of formal knowledge and rhetorical knowledge of the experimental group, which was not the case in the comparison group after conventional writing instruction.

4. The genre-based instructional approach was effective in improving students' rhetorical knowledge; that is, some participants elaborated on the audience and the intended purposes of argumentation after instruction. However, students from the comparison group did not demonstrate such changes, demonstrating little awareness of the audience and the argumentative genre's intended purposes. Moreover, the genre-based writing approach contributed to an increase in students' knowledge through the interactions of formal knowledge, which includes structure, language, and content elements, and rhetorical knowledge. This change was not evident in the comparison group.

5. The progress of students' knowledge about argumentation is comprehensive and complex. First, students from the experimental group demonstrate considerable growth of their knowledge about argumentation, with improvement in each element. Second, interaction among different knowledge elements promoted the changes in

students' knowledge. Thirdly, these elements, including formal knowledge and rhetorical knowledge, were the key role for the changes in students' knowledge about argumentation.

6. Changes in students' knowledge about argumentation appeared to be influenced by a number of factors, including the writing instruction and students' reflection. Contextual factors, such as teacher-led genre-based modeling analysis and teacher-guided question-based analysis of exemplars positively influenced L2 students' knowledge argumentation through mediation of their self-reflection.

7. The genre-based instructional approach was effective in promoting both high and low-proficiency students' changes in formal knowledge. There was more evidence of change in their knowledge about discourse moves, and language features specific to the argumentative genre, than in content knowledge. The genre-based instructional approach method, however, was not as effective in promoting low writing proficiency students' rhetorical and process knowledge as it was with students of high writing proficiency.

8.2.2 Students' Writing Performance Improvement

1. The experimental group made statistically significant improvements in three dimensions (counterargument claim, counterargument data, rebuttal claim) of discourse moves in argumentative writing, over time. However, there was no significant improvement in the writing move structure of the rebuttal data.

2. The experimental group demonstrated a statistically significant increase in the frequency of abstract reasons and a noticeable decrease in the number of vague reasons in relation to students' changes in writing substance in argumentation.

3. The experimental group showed a statistically significant increase over time in overall writing quality in argumentative writing.

4. At the pre-instruction phase, there was no difference between the two groups in discourse move structure, writing substance, and overall writing quality in

argumentation. The genre-based writing approach contributed more to the improvement of experimental group students' argumentative writing performance in terms of discourse moves, writing substance, and overall writing quality in argumentation than the conventional writing approach.

5. High-proficiency experimental group students made greater gains than the high-proficiency comparison group students in their discourse moves in argumentative writing, including counterargument claim and counterargument data after instruction. In the writing substance aspect, high-proficiency experimental students showed a greater increase than either the low-proficiency experimental, high-proficiency comparison, or low-proficiency comparison groups. In the overall writing quality aspect, genre-based writing instruction appeared to boost both high- and low-proficiency experimental group students' performance. However, the changes in the high-proficiency group were less evident than the low-proficiency group.

8.2.3 Effects of the development of Students' Knowledge on Their Writing Performance

1. The first characteristic of Chinese EFL students' increase in knowledge was that they demonstrated more essential information about "argument" with every knowledge element at the post-instruction phase than at the pre-instruction phase. There was evidence of a greater increase in knowledge of argumentation by the experimental group than the comparison group after instruction.

2. A second characteristic of Chinese EFL students' growth in knowledge was that their discrete knowledge elements in argumentation appeared to aggregate after the writing instructions. This was more evident with the intervention/experimental group than the comparison group after the completion of the respective writing course.

3. Students' greater essential knowledge of argumentation about each component appeared to mediate the quality of their argumentative writing.

4. Students' knowledge of different elements about argumentation are aggregated, which appeared to mediate their performance in argumentative writing.

8.3 Contributions and Implications

The contributions of this study to the existing literature and its pedagogical implications for the learning and teaching of writing in L2 are presented in the sections below. My elaboration of the theoretical and methodological contributions is followed with a discussion on the implications for teaching and learning of L2 writing.

8.3.1 Theoretical Contributions

Theoretically, this PhD research explores L2 students' knowledge of the elements in argumentation and the effects of a knowledge-based intervention on improving L2 writing performance. My study suggests that L2 writing is a complex process and the teaching and learning of L2 writing is equally complex. This is one of many studies that has been framed within Sociocultural Theory and findings suggest that the theories of ZPD, mediation, and internalisation can be used to explain the development of Chinese EFL students' knowledge of argumentation. I argue that their performance in argumentative writing is the outcome of a writing intervention implemented on the basis of this theoretical understanding. The various changes in students' knowledge about elements in argumentation, and the changes in students' writing performance related to discourse move, substance, and overall quality, was the outcome of the genre-based writing approach, or conventional writing approach, (mediation) as well as students' reflections and writing proficiencies in argumentation (internalisation). Therefore, it is possible to explain the changes in EFL students' knowledge and writing performance by integrating contextual and internal factors. The current study integrated both the current status of the students, and the situational development of undergraduate students' knowledge and writing performance in the Chinese EFL classroom context, to provide a better understanding of the nature of L2 writing development. This research explores

students' writing development taking account of aspects of student knowledge and writing performance, which have received relatively little attention in existing research.

Secondly, using Tardy's (2009) genre knowledge model as a lens, the current study provides a comprehensive exploration of Chinese EFL students' knowledge about argumentation. Thus, it is possible to trace the changes in students' knowledge from the aspects of the structural element, language element, content element, process element, rhetorical element, and the interactions among these elements. This study describes not only students' development of knowledge in regard to changes of each element, but also the complex interactions among these different elements, which has seldom been explored previously. In addition, this study also contributes to a better understanding of Tardy's genre knowledge model regarding the formal element, in which the structural, language, and content aspects were described together, and the interaction among them has been explored only vaguely.

8.3.2 Methodological Contributions

Methodologically, this study contributes to research in the field of L2 writing development by employing a quasi-experimental mixed-methods design to investigate the complex changes of L2 students' knowledge and writing performance and the factors that influence their changes. The exploration of L2 students' writing development with a single group intervention has been widely used in previous research. This quasi-experimental design uses the experimental and comparison groups to compare the changes in students' knowledge and writing performance over the same period, with two different instructions, that cannot be elicited from a single group intervention. Thus, this research may contribute to future research methodology that traces and explores the complexities and variations of research in this field.

This study provides a contextualised understanding of the changes in Chinese EFL undergraduate students' knowledge of, and writing performance in, argumentation and their development in relation to classroom-based writing practices. There has been little empirical research about L2 students' writing development taking account of both genre

knowledge and performance in China, especially with undergraduate students. As China has the largest number of EFL learners in the world, and the undergraduates account for the largest group of all students in the Chinese tertiary education sector, it is important to determine the state of current L2 writing theory and empirical findings of practices.

8.3.3 Pedagogical Implications

This investigation of the changes in Chinese EFL students' knowledge and writing performance in argumentation through a genre-based intervention has some pedagogical implications.

First, the current findings provide empirical evidence for the benefits of using genre-based practices in improving EFL students' genre knowledge and L2 writing performance (e.g., Huang & Li, 2012; Huang & Zhang, 2020; Wu & Cui, 2016), as writing pedagogy is regarded as a supplement to reading instruction in the College English Courses (Zhang, 2008, 2013, 2016). During the genre-based writing intervention, the EFL students were willing to engage in the genre-based practices, especially during the teacher-led genre-based textual modeling and teacher-guided analysis of exemplars with questions about knowledge, which provided the participants with the opportunity to engage in a specific genre context. Participants' improved their knowledge about argumentation, such as more essential knowledge of every component of argumentation and the knowledge about different elements that are aggregated was observed after the genre-based practices. Besides, it seemed that the knowledge they had developed about argumentation also mediated their writing performance in argumentation. Therefore, the findings of this study suggest that genre-based writing practices are beneficial in facilitating students' English writing learning at the tertiary level in China.

Second, the genre-based approach is still in the early stages of development in China. That is, many writing teachers in China are not trained to teach writing, so their pedagogy mainly focuses on doing error corrections instead of showing learners how to write, or scaffold learners by taking a genre approach (Zhang, 2016). There are two

reasons for the causes of this phenomenon. First, the restricted writing class hours block the implementation of a genre-based teaching method in China. Undergraduate students were only occasionally taught writing as a supplementary component for developing basic writing skills after the teaching of reading was done in the same course. Genre-based writing instruction usually requires many teaching hours; therefore, it was difficult for the genre approach to be implemented in the previous English courses in many universities in China. Second, English writing teachers were sorely lacking in the higher education system in China (Zhang, 2016). It is challenging for most teachers to transition from teaching general English to the specific English writing instruction in the academic environment. The exploration of Chinese EFL students' development in argumentation through the genre-based writing approach in this study is meaningful in that it might trigger policy-makers to look for feasible solutions. It is manifest that the choice of the argumentative genre gave the teacher and students an opportunity to promote the genre-based approach in EFL writing pedagogy in China. Although Chinese undergraduates do not need to write academic English reports and theses in their university education, some basic communicative competence in written English, such as expression of opinions, topic analysis, and responding to issues, is required and students should be equipped with such skills. The English argumentative genre may be a suitable channel to help Chinese undergraduate students to develop their English writing competence. Equally importantly, most tertiary English teachers felt constrained by a lack of resources on writing course design, teaching methods, writing assessment, and evaluation. The findings in this research suggest that writing teachers need to select specific genre-based practices based on the requirement of the curriculum or results of diagnosis measuring students' writing ability by looking for the needed resources.

Third, students' genre knowledge, as a complex system, can be influenced by a number of factors. In my study, students with different writing proficiencies showed varied changes in their knowledge and writing performance after the genre-based writing instruction. This implies that writing researchers and instructors should pay more attention to the complex nature and patterns of students' changes in knowledge

and writing performance and consider the multiple variables such as writing proficiency, and language proficiency that may affect L2 students' development in writing.

Fourth, the findings of my study might have implications for syllabus and curriculum design. The findings suggest that L2 writing teachers can be encouraged to draw from a variety of genre methods to identify problems and find solutions in particular contexts, to meet requirements of their learners accordingly. It is suggested that writing instructors in the EFL classroom contexts create teaching conditions which ensure opportunities for students to engage gradually with specific genres. That is, in the early stage, EFL college freshmen could be instructed in general genres as they have not entered into professional fields at this stage. Interventions with specific genre-based writing practices should follow in students' disciplinary genre in the subsequent stages. Furthermore, constraints on development, such as students' limited vocabulary and background knowledge needs to be considered during the process of designing practices.

Finally, this study found that internal and contextual factors play an important role in the development of Chinese EFL students' knowledge of argumentative writing and writing practices. Therefore, teachers of English and policymakers should consider designing practices to encourage learners' self-reflection. Besides, EFL students need to have a better understanding of specific genres and awareness of writing processes; students need a multi-faceted knowledge development process and more opportunities to promote their knowledge and writing.

8.4 Conclusion, Limitations of the Research and Recommendations for Further Research

8.4.1 Conclusion

It was concluded that most Chinese EFL undergraduate participants were relatively weak in their L2 writing ability as they had little knowledge about writing in the argumentative genre. Their L2 writing performance as assessed on the writing move structure, writing substance, and overall writing quality in argumentation was poor.

Furthermore, while for the experimental group there was evidence of growth in their knowledge about argumentation, for the comparison group there was not as much improvement. Reflections on their changes in knowledge by eight participants provided evidence of the effects of instruction in the writing classroom. Participants were influenced positively by genre-based writing practices, which included teacher-led genre-based modeling genre practices and teacher-guided question-based analysis of exemplars. Patterns of changes in student' knowledge among high and low proficiencies suggested that the variability of the levels of students' English writing proficiencies impacted on their development of knowledge about argumentation. For example, the genre-based treatment was not as effective in improving low writing proficiency students' rhetorical and process knowledge as it was with high proficiency students.

Participants in the experimental group appeared to improve significantly in argumentative writing performance, including the discourse move structure of counterargument claim and counterargument data, rebuttal claim writing substance of abstract argumentative reasons, and overall writing quality in argumentation. The improvement of participants in the comparison group was not as great as that of the experimental group participants, in which the significant improvement only appeared in the discourse move structure of counterargument claim and overall writing quality in argumentation. The development of writing performance for students' high and low proficiencies indicated the variability in their improvement in writing performance of argumentation. For example, the changes in argumentative writing move and writing for the experimental high-proficiency participants were more evident than the participants in other three groups. In addition, the changes in overall writing quality for the high proficiency participants were less evident than the low proficiency participants after instruction.

Two patterns of knowledge development were found to positively affect L2 students' writing performance. They are, students' more essential knowledge of argumentation about every component and their development of aggregated knowledge

elements about argumentation appeared to have mediated their performance in argumentative writing.

8.4.2 Limitations

In this study, a quasi-experimental mixed-methods design was adopted to explore 118 EFL undergraduates' knowledge and writing performance in a Chinese university over eight weeks. Although this study was well-designed and carried out carefully, three limitations need to be stated. Overall, they are an incomplete exploration of knowledge, a short length of instructional time and limited grouping of data collection, and the basis of judgment for students' writing proficiency.

Firstly, the investigation of Chinese EFL students' genre knowledge is still in the preliminary stage. The questions in the open-ended questionnaires and interviews do not provide an exhaustive examination of students' genre knowledge from all the dimensions, especially the knowledge about the subject element because this study was conducted in a Chinese context. For these non-English major EFL undergraduates in the Chinese tertiary level education there are specific requirements that are different from other research contexts, which argumentative writing, rather than disciplinary writing, is considered important in academic writing instruction. Therefore, the exploration of students' genre knowledge about the subject element was limited, despite both questionnaires and in-depth interviews to explore the knowledge of genre argumentation to triangulate the results.

Another limitation is that this experimental research lasted for only eight weeks; implementation of a longer programme might achieve different results. Such a limitation is hard to overcome as it is difficult to get permission from the university to implement a longer intervention.

Thirdly, writing proficiency of participants was measured only once in the first writing task. A more reliable assessment of writing proficiency levels based on a number of writing tasks, not only one task, may have led to different assessment of the participants; proficiency.

Given these shortcomings, it is necessary that further research is conducted to investigate the issues in more depth.

8.4.3 Recommendations for Future Research

This research explored the changes in students' knowledge about different elements and writing performance and also investigated the effects of students' growth in knowledge about argumentation on their EFL writing performance. Based on the above-mentioned limitations, this section makes some recommendations and suggestions for future research.

First, additional research should be conducted to explore EFL students' genre knowledge in terms of a wider range of knowledge elements and writing genres. The Investigation into the elements of Chinese EFL students' knowledge need to be extended, such as subject knowledge and metacognitive knowledge.Future studies should also include students' writing performance in various genres, and include participants at various educational levels or in specific majors to provide more comprehensive findings.

Secondly, future research should be longitudinal to explore the dynamic development of Chinese EFL students' knowledge of argumentation and writing performance at different stages. When Chinese EFL students enter the university and start their careers, they will experience changes in various situations. Longitudinal research will give a clearer understanding of how students' knowledge and writing performance develops over time.

Thirdly, as this study collected data only from students, future research could be extended to elicit data on teachers' cognition of their practices in the EFL writing pedagogy. The combination of two perspectives, teachers and students, would provide an opportunity for an innovative probe into the development of L2 students' writing. In addition, the findings of teachers' perspectives and purposes of practices can be compared with the actual changes in students' knowledge and writing performance, to

provide more evidence of the possibilities for using genre-based writing practices as a teaching tool in English writing instruction in the EFL context.

APPENDIX ONE

Pre-test open-ended questionnaire

	Open-ended questions	Knowledge
1.	How many compositions did you write last year? How many pieces were argumentative writing?	Personal knowledge
2.	How many years have you studied English?	Personal knowledge
3.	How would you describe the overall structure of your writing?	Formal knowledge
4.	Why did you choose this organizational pattern/structure?	Formal knowledge
5.	How would you present/define/express each structure? (What is the main content of each structure?	Formal knowledge
6.	In your opinion, what linguistic features are important in argumentative writing?	Formal knowledge
7.	How do you compose this argumentation (write more about your composing process)?	Process knowledge
8.	In your opinion, what is the aim of your argumentative writing?	Rhetorical knowledge
9.	Did you consider what kind of explanation is needed for reader to understand the knowledge in your writing? For example, what kind of things do you think about when you do your argumentative writing?	Rhetorical knowledge
10.	Did you think about reader's expectations from your argumentative writing? If yes, what are they?	Rhetorical knowledge

APPENDIX TWO

Post-test open-ended questionnaire

	Open-ended questions	Knowledge
1.	How would you describe the overall structure of your writing?	Formal knowledge
2.	Why did you choose this organizational pattern/structure?	Formal knowledge
3.	How would you present/define/express each structure? (What is the main content of each structure?	Formal knowledge
4.	In your opinion, what linguistic features are important in argumentative writing?	Formal knowledge
5.	How do you compose this argumentation (write more about the steps and content in each step during your writing process)?	Process knowledge
6.	In your opinion, what is the aim of your argumentative writing?	Rhetorical knowledge
7.	Did you consider what kind of explanation is needed for reader to understand the knowledge in your writing? For example, what kind of things do you think about when you do your argumentative writing?	Rhetorical knowledge
8.	Did you think about reader's expectations from your argumentative writing? If yes, what are they?	Rhetorical knowledge

APPENDIX THREE

Writing task (A)

One university student's suggestion on being allowed to focus on subjects in their first year at university:

Academically, we should take same courses that are decided by the government in the fresh year. However, for university students, I think we should be allowed to fully develop our preferred subjects in the first year. If all the students take the same courses, many talented students may feel frustrated with learning and the nation will not get the talent it needs for its advancement.

The task instructions are as follows:

Write an article responding to this student's suggestion about university curriculum reform. You may argue **FOR** or **AGAINST** his/her position, but your text should describe both argument and counterargument.

Writing task (B)

One university teacher's suggestion on postgraduate stage English education:

For years, most English educators have only focused on generally fundamental knowledge in order to improve students' comprehensive English ability. However, for postgraduate student, once they acquired the basic general English knowledge, we should put language in a context to improve their language application ability, especially, in their selected professional field.

The task instructions are as follows:

Write an article responding to this teacher's suggestion about English instruction in postgraduate level. You may argue **FOR** or **AGAINST** his/her position, but your text should describe both argument and counterargument.

APPENDIX FOUR

Semi-structural Interview Prompt (pre-)

	Interview questions	Knowledge
1.	Please tell me your experience of learning argumentative writing in schools. 请告诉我你在学校学习英文议论文的经历。	Personal knowledge
2.	Did your teacher teach you any writing skills? If yes, do you think these skills are useful? Why? 老师在课堂中有教授过写作方法，技巧吗？如果有，你认为这些技巧有用吗？为什么？	Personal knowledge
3.	Do you have any difficulties when you build the structure of your writing in the argumentative writing tasks? If yes, how do you solve these problems? 在写作任务中，在搭建文章结构时有什么困难吗？如果有，你是如何解决的？	Formal knowledge
4.	When you organise the content of your writing what was the key factors? Do you have any difficulties in this process? If yes, how do you solve these problems? 在构思文章内容时从哪些方面着手？有遇到困难吗？如果有，如何解决？	Formal knowledge
5.	What kinds of factors may influence your writing performance? 在进行写作时，你认为自己的写作会受到哪些因素的影响？	Formal knowledge

	Interview questions	Knowledge
6.	Do language ability is the barrier in your writing performance? If yes, what kinds of language factors may influence your writing performance? 语言是你写作表达的障碍吗？如果是，你认为哪些语言因素会影响你的英文议论文写作？	Formal knowledge
7.	When you were given an argumentative writing task, what did you do firstly? Why? 当拿到议论文任务时，你首先会做什么？	Process knowledge
8.	Do you have any special aims in the recent argumentative writing practice? 现阶段进行的议论文写作练习中，写作目的是什么？	Rhetorical knowledge
9.	Do you ever think about the reader of your argumentation? If yes, are there any special things you do to complete their demand. 、 有考虑过你的议论文读者是谁吗？如果有，要满足读者的要求要做什么吗？	Rhetorical knowledge

APPENDIX FIVE

Semi-structural Interview Prompt (post-)

	Interview questions	Knowledge
1.	How would you evaluate your argumentative writing? Do you feel you have improved after the writing course? Why or why not? If yes, in what aspects? 如何评价自己的议论文写作？写作课后有进步吗？为什么？ 如果有，哪些方面有进步？	Personal knowledge
2.	Did your teacher teach you any writing skills in the course? If yes, do you think these skills are useful to improve your writing? Why? 老师在写作课上有教授写作方法，技巧吗？如果有，你认为这些技巧可以帮助你提升写作吗？为什么？	Personal knowledge
3.	Do you have any difficulties when you build the structure of your writing in the argumentative writing tasks? If yes, how do you solve these problems? 在写作任务中，在搭建文章结构时有什么困难吗？如果有，你是如何解决的？写作课后有进步吗？为什么？	Formal knowledge
4.	When you organise the content of your writing what was the key factors? Do you have any difficulties in this process? If yes, how do you solve these problems? Do you feel you have improved after the writing course? 在构思文章内容时从哪些方面着手？有遇到困难吗？如果有，如何解决？写作课后有什么不同吗？	Formal knowledge

	Interview questions	Knowledge
5.	What kinds of factors may influence your writing performance? Do you feel you have improved after the writing course? 在进行写作时，你认为自己的写作会受到哪些因素的影响？写作课后有什么不同吗?	Formal knowledge
6.	Do language ability is the barrier in your writing performance? If yes, what kinds of language factors may influence your writing performance? Do you feel you have improved after the writing course? 语言是你写作表达的障碍吗？如果是，你认为哪些语言因素会影响你的英文议论文写作？写作课后有什么不同吗?	Formal knowledge
7.	When you were given an argumentative writing task, what did you do firstly? Why? Do you feel you have improved after the writing course during this process? 当拿到议论文任务时，你首先会做什么？写作课后有什么不同吗?	Process knowledge
8.	Do you have any special aims in the recent argumentative writing practice? Do you feel you have improved after the writing course in this section? 现阶段进行的议论文写作练习中，写作写作目的是什么？写作课后有什么不同吗?	Rhetorical knowledge
9.	Do you ever think about the reader of your argumentation? If yes, are there any special things you do to complete their demand. Do you feel you have improved after the writing course in this section? 有考虑过你的议论文读者是谁吗？如果有，要满足读者的要求要做什么吗？写作课后有什么不同吗?	Rhetorical knowledge

APPENDIX SIX

Writing Scoring Profile

	Level 1	Level 2	Level 3
Content inclusion (20%)	Make some arguments that related to the topic. The content can be tangential from the topic. (0-6)	Include most argument elements (e.g., position statement, main points, evidence, restatement). Include some useless information which does not contribute to argument. (7-12)	Include all argument elements (e.g., position statement, main points, evidence, restatement). The content relates and contributes to the argument. (13-20)
Coherence (20%)	Only organized at sentence level. (0-6)	Attempt to structure content with grouping ideas across sentences. May use simile linking words (e.g., and, or, because). (7-12)	Effective ideas grouping and paragraphing. Use varied linking words or phrases (e.g., Although, by the same token, nevertheless). (13-20)
Audience awareness and purpose (20%)	Writer recognizes that his/her opinion is needed in evidence. The writer uses language to state opinions with a personal perspective. (0-6)	Language use and writing style generally appropriate to audience. Writer states his/her position. Some attempt to influence the reader is evident. (7-12)	Language use and writing style appropriate and directed to audience (e.g. attempts to persuade reader). Clearly stated consistent position is evident. (13-20)

	Level 1	Level 2	Level 3
Language resources for achieving the purpose (20%)	Topic-related vocabulary present. Often speech-like in structure and uses a personal voice. (e.g., I reckon) (0-6)	Uses topic appropriate vocabulary. Attempts to use language to make arguments seem more objective (e.g., passive structures) and powerful (e.g., emotive language). (7-12)	May attempt to use persuasive language (e.g., emotive vocabulary) to influence readers or includes or refers to the reader (e.g., you would). Uses language to make arguments seem more objective (e.g., passive structures) and/or powerful (e.g., certainly, must, absolutely). (13-20)
Vocabulary and grammar (15%)	Limited vocabulary range; frequent errors of agreement, tense, number, articles, pronouns, prepositions and meaning confused or obscured. (0-4)	Appropriate vocabulary range; several errors of agreement, tense, number, articles, pronouns, prepositions but meaning seldom obscured. (5-9)	Sophisticated vocabulary range; few errors of agreement, tense, number, articles, pronouns, prepositions (10-15)
Mechanics (5%)	Frequent errors of spelling, punctuation, capitalization, paragraphing. (0-1)	Occasional errors of spelling, punctuation, capitalization, paragraphing. (2-3)	Few errors of spelling, punctuation, capitalization, paragraphing. (4-5)

APPENDIX SEVEN

Toulmin's Argument Structure with Examples

Argumentative elements	Definitions and descriptive examples (from students' writing)
Claim	An assertion in response to a contentious topic and problem. -I think it's very useful to improve students' language application ability. -As far as I am concerned, it does not very useful to improve students' language application ability. -In my view, it depends on the situation. (contingent)
Data	Evidence to support a claim. It can take various forms, such as facts, expert opinions, definitions, anecdotes, research studies, and logical explanations. -Bill Gates did not finish his college, but he achieved a great success at last. (anecdote) -The goal of study language is to use it in the daily life. If we do not improve students' language application knowledge, language will lose its ultimate meaning. (fact)
Counterargument claim	The possible opposing views that can challenge the validity of a writer's claim. -However, others claim that if they only want to improve their application ability, they may lose the fundamental knowledge completely. - Other people hold different views. -Others may claim skeptically that…

Argumentative elements	Definitions and descriptive examples (from students' writing)
Counterargument data	Evidence similar to "Data" above to support a counterargument claim. -They think English for Chinese students is only a course, and most students do not have chance to use it in their daily life. For these students the only motivation to study English well is the exam, therefore, they should learn as much English fundamental knowledge as possible. -The fundamental knowledge is helpful to students to have more deep understanding of English, and it will play an important role in their future study.
Rebuttal claim	Statements in which the writer responds to a counterargument. -In my opinion, postgraduate students should put language in a context, despite it is difficult to start. -This argument misses the point that they are old enough to learn what they really interested. -Nevertheless, I think……
Rebuttal data	Evidence to support a rebuttal claim which include the possible weaknesses in the counterargument claim, data or assumptions, such as logical fallacies, insufficient support, invalid assumptions and immoral values (Ramage &Bean, 1999) -There will be no unjust labeling because … -Only depend on the translator is not reliable because some professional knowledge is only understudied by the professionals, the translator cannot replace them.

APPENDIX EIGHT

Rules for Resolving Issues in Coding

[All the examples below are come from students' essays, and the superscripts mark means the number of sentences]

[1] What to do with sentences describing a phenomenon in the beginning of a student essay.

Rule:

When sentences in the beginning of a student paper are describing a phenomenon in a broader social context, these sentences will be not coded, because they do not contribute to any argument structure in terms of Toulmin model.

Examples:

1. What is well-known to us all that more and more people pay important attention to the English education. Therefore, there is a question that which study is better for postgraduate student.

2. English is the most popular language in the world. Chinese students learn English from child time. The country acquire we should have a high level in English. I think English is important.

3. With the development of society, the important of English has been realized by more and more people. For example, our parents may ask us to take part in a great amount of English extra-classes.

4. As we all know, the world has changed a lot, we must get plenty of knowledge if we want to survive.

[2] What to do with sentences suggesting a writer's solution to a problem or persuading reader to carry out an action in the conclusion section

Rule:

When sentences suggest a writer's solution to a problem or persuade readers to carry out an action in the conclusion section, these sentences will not be coded, because these excerpts often summarized the writer's view from the previous paragraphs, and they do not contribute to an argument structure in terms of the Toulmin model.

Examples:

1. Different people should adopt different model of education. Different model has advantages and disadvantages, only in this way, students can improve themselves largely.

2. In my opinion, the English education should accord to different level people and different ability people to do. In this way, it can improve more students' ability and help them to know themselves better.

[3] What to do with sentences in a student paper that only copy or summarize the information from the teacher's suggestion from the source subject.

Rule:

The sentences including a summary or a copy from the teacher's suggestion in the source subject will not be coded because this research's focus is the argumentative writing, summaries of source texts are not relevant to the argumentative writing in term of Toulmin model.

Example:

However, other people think that it is necessary for postgraduate students to improve their language application ability. Only in this way, can they get a better understanding of the knowledge in their selected professional field.

[4] How to differentiate rebuttal claims from claims?

Rule:

If a statement follows a counterargument structure, then it is considered as a rebuttal claim instead of a claim.

Example:

There are some people stand on the opposite side. They think that the fundamental English knowledge is enough for students' daily communication [counterargument claim]. For the spatialized English writing, we can write article in Chinese, and then employ a translator translate them into English. [counterargument data] However, I believe that English application ability is required for our postgraduate students [rebuttal claim]. Because some professional knowledge is only understudied by the professionals, and the translator can not take place of themselves. [rebuttal data]

[5] What to do with the repetition of claims.

Rule:

Claims are sometimes repeated in student essays. The repeated claims are counted once only. In the following excerpt, this student states that claim "students should learn the courses that they are interested in" twice, as in sentence 1 and 6. It is counted once only.

Example:

In my opinion, students should learn the courses that they are interested in.1 In deed, it is reasonable to some extent for authorities to decide students' subjects.2 [counterargument claim] At first, the establishment of several courses is to cater the countries' requirement.3 [counterargument data] Besides, the government decided the course because they have to keep a balance between all the subjects.4 If not, some unpopular subjects like philosophy will be chosen by few students, which is not good for those subjects to develop.5 [counterargument data] nevertheless, students should be encouraged to learn what they like.6 [claim]

[6] What to do with several consecutive sentences that are used as data to support the claim describe an issue.

Rule:

They should be coded as one piece of data. In the following excerpt, sentence 1 and 2 together discuss one same issue to support the claim, so they will be coded as one piece of data.

Example:

Besides, the government decided the course because they have to keep a balance between all the subjects.1 If not, some unpopular subjects like philosophy will be chosen by few students, which is not good for those subjects to develop.2 [counterargument data]

APPENDIX NINE

The definitions and examples for the form of reasons

1. Vague. The reasons that consist of imprecise statement. For example, "because the fundamental courses could improve their ability and make students become clever."

2. Make sense. Three categories of reasons (rule-based reasons, authority reasons and personal reasons) recognized by Means and Voss (1996) could be aggregated as the make sense reasons. Rule-based reasons are generally accepted truisms or beliefs. (rule-based reasons are generally accepted beliefs or truisms) For example, "the education system and people's thought are hard to reform; We learned alphabet before we learned the word, phases and sentences. Only did we solid foundation can help us to reach a farther target; If they want to be better in their professional field, they must be better at basic English firstly; Just as the saying goes, well begun is half done….". Authority reasons involve appeal to authorities. (an authority), such as "the winner of the Nobel prize has proved this point". personal reasons refer to the personal experience of the student. (personal reasons are based on personal experience, for example "All of my English teachers have only focused on generally fundamental knowledge so that I am not good at the application of English. For example, in my daily life, I like to do the listening and reading excises, and do not like to communicate with foreigners or read English novels; From my experience, there are many talented boys and girls who cannot make their gifts completely in the school; As for me, I always feel that the contents of course are very basic, and I can finish them easily; I have seen some people puzzled when they need to apply English to their professional field.   …" These three categories have been combined as one reason for analyzing in this study for the following three reasons. Firstly, rule-based, authority, and personal reasons have proven differ little in reasoning quality. Secondly, the reasons of rule-based, authority, and personal were difficult to be explicitly distinguished. For example, "I agree with this teacher's suggestion because I heart a educationalist in a lecture who said that these courses help students

do their professional publish" It can be coded as both authority and personal experience. Thirdly, the person's tacit, heard or experienced stories cab be related as a make sense epistemology (Perkins, 1991). Therefore, it can be concluded that rule-based reasons, authority reasons, and personal reasons can be considered as the make sense reason in this form of reasons coding section.

3. Consequential reasons are statements in which a direct consequence is always stated an outcome of a particular action. (a direct consequence is stated as an outcome of a particular action)

4. Abstract reasons are logical in form. They proceed from a general class from which the participant reasons. (abstract reasons are logical in form, for example, an argument "by definition" in which a reason is classified as a member of a general or similar class and then the participant reasons from this class, such as "because trust is important in a relationship and without it, it's not a relationship… or not a healthy one anyway."

APPENDIX TEN

Course stages

1.Argumentative Writing Introduction (week 1-2)
- The background introduction about argumentative writing
- Mode-based sample analysis (argumentative essay): focus on textual formats; focus on textual awareness
- Peer discussion: leaners group discussion argumentative model
- Practice tasks: use of model after class

2.Argumentative writings in different context (week 3-5)
- Sample analysis (argument): Five argumentative essays analysis (words by words; sentence by sentence; focus on comprehension of the subject)
- Peer discussion: leaners' group discussion of the use of words and sentences in argumentation
- Practice tasks: Practicing new vocabulary and grammar used in the text

3.Mode construction (week 6)
- Mode construction: teacher-guided argumentative mode construction (structure, vocabulary, and grammar)
- Peer discussion: leaners group discussion of mode construction of argumentative writing
- Practice tasks: students' individual mode construction after class

4.Classroom-based writing excise (week 7-8)
- Exercises about mastering of textual forms and their comprehensive understanding of the text.
- Students' argumentative writing in the class; peer assessment
- Teacher's scores and comments; teacher-leaded and group-based discussion about their writing

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APPENDIX ELEVEN

Participants Information Sheet and Consent Form for Principle of School

SCHOOL OF CURRICULUM AND PEDAGOGY
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Phone: +64 09 623 8899
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The University of Auckland
Private Bag 92019
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET

(For Teachers)

Project title:

The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing

Name(s) of Researcher(s): Tingting Zhang

Researcher introduction:

My name is Tingting Zhang and I am currently pursing my PhD degree in the Faculty of Education and social work at The University of Auckland, New Zealand. I will conduct a research project on "The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing".

Project description

Aims

The present study aims to investigate English-as-a-foreign-language (EFL) Chinese graduate students' development of writing knowledge, the structure and substance in argumentation through a genre-based writing instruction. The instruction aims: (a) to help them become good at writing in a specific genre (argumentation) in English; and (b) to help them develop more sophisticated knowledge about argumentation and the writing process in general. Specifically, the present study concentrates on two areas of inquiry: (1) Ontogenetic changes in individual writers' argumentative genre knowledge;

overall quality of writing performance; argumentation structure; and substance; and (2) comparisons of the changes across writers at two different proficiency levels.

Significance

The findings of this research will contribute to a deeper understanding of the process of Chinese students' genre knowledge, writing structure and writing substance, the factors affect their knowledge change, and the relationship between students' genre knowledge and their writing structure, writing substance and writing scores. The results may also provide some suggestions on improving the quality of EFL students' writing program and motivating more writing teachers working on academic writing area.

Research design

This study will be framed as a quasi-experimental study. Two classes, each with 80 Chinese students, will be chosen for a three-month intervention. In the experimental group, 80 participants will be instructed with genre-based writing tasks. In the control group, another 80 students will be taught through the traditional content-based writing instruction in their first-year graduate study. These participants will be assigned to the experimental group and control group based on the principle of random sampling. The methodological approach will involve both quantitative and qualitative methods. Two phases are involved in the study.

The first phase is an exploratory study, in which the student writers' current argumentative knowledge about genre, surface structure, writing substance and their overall writing performance will be investigated by using a pre-instructional test, a questionnaire and 8 student interviews. Methods for data collection include: 1) A pre-writing test; 2) A questionnaire; 3) Individual interview of 8 students.

The second phase has two stages. The first one is the instructional implementation stage, which aims to investigate how learning to write is mediated by different instructions. A quasi-experiment will be conducted with the participants who are chosen from the same university. These first-year graduate students will be assigned to the experimental group (n=80) and control group (n=80) based on the principle of random sampling with different teachers teaching in the similar multimedia environment. These teachers are of comparable qualifications and teaching experiences. The teacher for the control group

will use the traditional instruction, as is usually the case. The participants in the experimental group will attend an 8 weeks' genre-based writing instruction programme, in which the teacher will teach them how to write argumentative essays scaffolded with explicit genre knowledge using a sequence of writing tasks. The control group will not receive genre-based tasks and the teacher in this group will not receive the genre-based instruction training from the researcher. Methods for data collection include: 1) A post-writing test; 2) A questionnaire; 3) Individual interview of 8 students; 4) A genre-based writing intervention programme.

Duration

Data collection will start from September 2016 and will last for three months. The argumentative training courses will take place in _____on_____.

Compensation

Two instructors will be paid by the researcher according to the standard salary of teaching in your university. The instructor for the experimental group will be trained by the researcher for free. Moreover, I will ensure that the instructor in the control group in the study will receive the same instructional training following the intervention by me. It is noteworthy that the teaching instruction is a separate section, which means that the participants will use their after-class time to participate in it.

Project Procedures:

If you decide to participate in the intervention, you will receive a genre-based instructional training. What you need to do in this course is listed as follows:

1. The instructor for the experimental group: Two genre-based activities were designed for the experimental group students, and each of them have four phases: 1) input phase, 2) pedagogic phase, 3) target activity phase, 4) follow-up phase. All the materials and procedures will be provided in the writing syllabus in the training.

2. The instructor for the control group: For the control group, you could choose your own textbook. Materials and procedures are all from this textbook.

Data management

Two teachers will be invited to participate in this research. Although they are not the participants from whom data will be collected for this study, they are part of the research project because of their involvement.

Right to withdraw from participation

Two instructors in the study is totally voluntary. If you change your mind in this project, you have the right to drop out at any time before the intervention started. In addition, we will seek for the dean's assurance that your participation or non-participation in the project will not affect your relations with the students, your progress in your university, and your relationship with the school authorities.

Anonymity and confidentiality

In this research, confidentiality is assured. Information about the university and the college will be disguised. No identifying information will be disclosed to a thirty party.

Thank you for taking the time to read this information sheet. If you have any queries or questions, please feel free to contract me or my supervisors.

Contact details

Researcher	Supervisor	Co-supervisor
Tingting Zhang, School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland tingting.zhang@aucklanduni.ac.nz Ph: +64 9 623 8899 ext: 37599 Local contact in China christine09cool@163.com Ph: +86 13803408443	Professor Lawrence Zhang (Main supervisor) School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland lj.zhang@auckland.ac.nz Ph: +64 9 6238899 ext: 48750	Dr Natsuko Shintani (Co-supervisor) School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland n.shintani@auckland.ac.nz Ph: +64 9 6238899 ext: 48463

You may also contact the head of the School of Curriculum and Pedagogy, Associate Professor Helen Hedges at h.hedges@aucklan.ac.nz or +64 9 373 7599 ext. 48606.

For any queries regarding ethical concerns, you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Office

of the Vice Chancellor, Private Bag 92019, Auckland, 1142. Telephone 09 373-7599 ext. 83711. Email: ro-ethics@auckland.ac.nz.

Approved by the University of Auckland Human Participants Ethics Committee on 27-May-2016 for three years, Reference Number 017467

PARTICIPANT INFORMATION SHEET

(For Students)

Project title:

The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing

Name(s) of Researcher(s): Tingting Zhang

Researcher introduction:

My name is Tingting Zhang and I am currently pursing my PhD degree in the Faculty of Education and social work at The University of Auckland, New Zealand. I will conduct a research project on "The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing".

Project description, invitation:

We will invite 160 students to participate in a training course. All the participants will be randomly divided into two classes, with 80 students each. The course will last from September 2016 to November 2016. For the experimental group, you will be asked to attend 4 class hours' genre-based instruction, two tests (pre-test and post-test), two questionnaires and 8 of you will be interviewed after the tests. For the control group, you will also be asked to attend 8 weeks' argumentative writing class, two tests (pre-test and post-test), two questionnaires and 8 of you will have interviews after the tests.

I sincerely invite you to participate in it. As the compensation for your time, a supermarket gift card ($10) will be awarded to you. Not all volunteers may be accepted: if there are more than needed, there will be randomly selectted. Your faculty Dean has provided assurances that participation or non-participation will not affect your employment status and relationship with your faculty.

Project Procedures:

If you decide to participate in the intervention, you will receive an argumentative writing course. What you need to do in this course is listed as follows:

1. Writing tests: You will be asked to take two writing tests: pre-writing test and post-writing test. You are required to produce an argumentative writing with 250 words in 45 minutes in each test on similar topics related to students' study and life. All the tests are handwritten tests and all the results will only be used for research purpose, which are irrelevant to the students' academic performance in the university. The pre-writing test will be conducted before the intervention at the end of September in the writing training room. The post-writing test will be conducted after the intervention in the early November in the writing training room.

2. Questionnaires: an anonymous questionnaire will be administrated immediately after both pre-test and post-test in the training room and each questionnaire will last for 20 minutes.

3. Interviews: 8 of you will be invited to participate in two interviews. Each interview will take about 10 minutes and will occur outside the class time, at a time and place suitable for you. I will conduct, audio-record and transcribe each interview. During the interview, you can refuse to answer any questions, and may request the recording to be stopped, temporarily or permanently, anytime without giving a reason if you feel uncomfortable. You will be provided with a copy of the interview transcript for review and approval.

4. Four teaching sessions: The experimental group participants will be asked to attend four one-hour sessions which are based on genre-based writing instruction. The control group students will also be asked to attend four one-hour argumentative writing sessions. These teaching sessions will be conducted once two weeks in October in the writing training room.

In all these learning procedures, the persons you will interact with are the two instructors and the researcher. Thus, you will not have much interference or get much distracted from the normal day of college life. Data collected as part of the study will only be used for research purpose but will never be used to inform the course assessment.

The pre-test, pre-questionnaire will take place in _____ on_____. The argumentative training courses will take place in _____on_____. The post-test, post-questionnaire will take place in _____on_____. The time and place of the interview will be decided by the participants.

Right to Withdraw from Participation

Participation in the study is totally voluntary and participants are entitled to withdraw anytime during the data collection. However, you can only withdraw your data up to three weeks after the data collection because the data analysis will be underway after that time. In addition, we will seek for the dean's assurance that your participation or non-participation in the process will not affect your relationship with the teaching staff, your progress in your course of study, and your relationship with the school authorities.

Anonymity and Confidentiality

Due to the characteristics of the teaching experiment, the identity of you as a participant in the study is inevitably to be known to all other participants in the same class and likely to others as well. We kindly remind you of this risk. Please be aware that your classmates will witness your performance in the same class. If you don't want your identity to be known to the others, you can withdraw from the writing session at any time. However, we will try our best to keep your records private as required by law. We will use a research code rather than your name on study records. Only the researcher and the researcher's supervisors will have access to the information you provide. Test materials will be stored in locked cabinets. Data will be analyzed via a password- and firewall-protected computer. The key (code sheet) to identify the research participant will be stored separately from the data to protect privacy and will be destroyed when this protocol expires. Your name and other facts that might point to you will not appear when we present this study or publish its results. The findings will be summarized and reported in group form. If the individual case study is mentioned, a pseudonym will be used. You will not be identified personally.

Thank you for taking the time to read this information sheet. If you have any queries or questions, please feel free to contact me or my supervisors.

Yours sincerely,

Tingting Zhang

Contact Details and Approval Wording

If you would like further information about this project, please feel free to contact me or my supervisors through our contact details below:

Researcher	Supervisor	Co-supervisor
Tingting Zhang, School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland tingting.zhang@aucklanduni.ac.nz Ph: +64 9 623 8899 ext: 37599 Local contact in China christine09cool@163.com Ph: +86 13803408443	Professor Lawrence Zhang (Main supervisor) School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland lj.zhang@auckland.ac.nz Ph: +64 9 6238899 ext: 48750	Dr Natsuko Shintani (Co-supervisor) School of Curriculum and Pedagogy, Faculty of Education and Social Work, The University of Auckland Gate 3, 74 Epsom Ave, Auckland n.shintani@auckland.ac.nz Ph: +64 9 6238899 ext: 48463

You may also contact the head of the School of Curriculum and Pedagogy, Associate Professor Helen Hedges at h.hedges@aucklan.ac.nz or +64 9 373 7599 ext. 48606.

For any queries regarding ethical concerns, you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Office of the Vice Chancellor, Private Bag 92019, Auckland, 1142. Telephone 09 373-7599 ext. 83711. Email: ro-ethics@auckland.ac.nz.

Approved by the University of Auckland Human Participants Ethics Committee on 27-May-2016 for three years, Reference Number 017467

CONSENT FORM

(For Teachers)

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:

The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing

Name(s) of Researcher(s): Tingting Zhang

The following activities are provided for you to choose. If you agree, please tick (√) in the □.

□ I agree to participate in the teaching instruction. (4 study hours)

□ I understand that I am free to withdraw participation at any time before the intervention.

□ I wish to receive the summary of findings. My email address is _____.

□ I agree to not disclose anything discussed in the interviews.

□ I understand that data will be kept for 6 years, after which they will be destroyed by the researcher with the permission of the dean.

I have read the Participant Information Sheet (For teachers). I have understood the nature of the research. I have been told that you have got the assurance from my dean that my participation or non-participation will never affect my relationship with the school or my performance in the university. I have had the opportunity to ask questions and have them answered to my satisfaction.

Name: _____

Signature: _____

Date: _____

I wish to receive a summary of findings, which can be emailed to me at this email address: _____

Approved by the University of Auckland Human Participants Ethics Committee on <u>27-May-2016</u> for three years, Reference Number <u>017467</u>

CONSENT FORM

(For Students)

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title:

The Effects of English-as-a-Foreign-Language (EFL) students' Knowledge about the Elements in Argumentation on Their Writing

Name(s) of Researcher(s): Tingting Zhang

The following activities are provided for you to choose. If you agree, please tick (√) in the □.

□ I agree to participate in the teaching instruction. (8 study weeks)

□ I agree to participant in the following writing tests: (30 minutes each)

    □ Pre-test   □ Post-test

□ I agree to participant in the following questionnaires: (20 minutes each)

    □ Pre-questionnaire   □ Post-questionnaire

□ I agree to participant in the interviews: (10 minutes each)

    □ After pre-test and pre-questionnaire

    □ After post-test and post-questionnaire

□ I understand that I am free to withdraw participation at any time during the study.

□ I understand that I can withdraw my data up to 3 weeks after the data collection.

□ I agree to be audiotaped during the interview. I can ask you to turn off the recorder at any time.

□ I wish to receive the summary of findings. My email address is _____. □ I agree to not disclose anything discussed in the interviews.

□ I understand that a third party who has signed a confidentiality agreement will transcribe the tapes.

□ I understand that data will be kept for 6 years, after which they will be destroyed by the researcher with the permission of the dean.

I have read the Participant Information Sheet (For students). I have understood the nature of the research. I have been told that you have got the assurance from my dean that my participation or non-participation will never affect my relationship with the school or my academic performance in the university. I have had the opportunity to ask questions and have them answered to my satisfaction.

Name: _____

Signature: _____

Date: _____

Approved by the University of Auckland Human Participants Ethics Committee on 27-May-2016 for three years, Reference Number 017467

REFERENCES

Angelova, M., & Riazantseva, A. (1999). "If you don't tell me, how can I know?" A case study of four international students learning to write the U.S. way. *Written Communication*, *16*, 491-525.

Bacha, N. (2010). Teaching the academic argument in a university EFL environment. *Journal of English for Academic Purposes*, *9*(3), 229-241.

Badger, R., & White, G. (2000). A process genre approach to teaching writing. *ELT Journal, 54*(2), 153-160.

Barks, D., & Watts, P. (2001). Textual borrowing strategies for graduate-level ESL writers. In D. D. Belcher & A. Hirvela (Eds.), *Linking literacies: Perspectives on L2 reading-writing connections* (pp. 246-267). Ann Arbor, MI: University of Michigan Press.

Baron, J., Voss, J. F., Perkins, D. N., & Segal, J. W. (1991). *Informal reasoning and education.* New York, NY: Routledge.

Bazerman, C. (1994). Systems of genres and the enactment of social intentions. In A. Freedman & P. Medway (Eds.), *Genre and the new rhetoric* (pp. 67-86). London, England: Routledge.

Beaufort, A. (1999). *Writing in the real world: Making the transition from school to work*. New York, NY: Teachers College Press.

Beaufort, A. (2000). Learning the trade: A social apprenticeship model for gaining writing expertise. *Written communication, 17*(2), 185-223.

Beaufort, A. (2008). *College writing and beyond: A new framework for university writing instruction.* Logan, UT: Utah State University Press.

Becker, A. (2006). A review of writing model research based on cognitive processes. In A. S. Horning & A. Becker (Eds.), *Revision: History, theory, and practice* (pp. 25-49). West Lafayette, IN: Parlor.

Benesch, S. (1993). ESL, ideology, and the politics of pragmatism. *TESOL Quarterly*, 27, 705-717.

Benesch, S. (1995). Genres and processes in a sociocultural context. *Journal of Second Language Writing*, *4*, 191-195.

Bereiter, C., & Scardamalia, M. (1987). The psychology of written composition. Mahwah, NJ: Erlbaum.

Bereiter, C., & Scardamalia, M. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise.* Chicago, IL: Open Court.

Berkenkotter, C., & Huckin, T. N. (1993). Rethinking genre from a sociocognitive perspective. *Written communication*, *10*(4), 475-509.

Berkenkotter, C., & Huckin, T. N. (2016). *Genre knowledge in disciplinary communication: Cognition/culture/power.* New York, NY: Routledge.

Bhatia, V. K. (1999). Integrating products, processes, purposes and participants in professional writing. In C. N. Candlin & K. Hyland (Eds.), *Writing: Texts, processes and practices* (pp 21-39). London, England: Longman.

Blanche, M. T., Blanche, M. J. T., Durrheim, K., & Painter, D. (Eds.). (2006). *Research in practice: Applied methods for the social sciences.* Cape town, Western Cape: University of Cape Town Press.

Breen, M. (2014). *Learner contributions to language learning: New directions in research* (4th ed.)*.* London, England: Pearson.

Breetvelt, I., Van den Bergh, H., & Rijlaarsdam, G. (1994). Relations between writing processes and text quality: When and how? *Cognition and Instruction, 12*(2), 103-123.

Bruce, I. (2013). A role for genre-based pedagogy in academic writing instruction: An EAP perspective. *TEXT Special Issue 21: Scores from another ground*, *21*, 1-15.

Bulte, B. & A. Housen (2014). Conceptualizing and measuring short-term changes in L2 writing complexity. *Journal of Second Language Writing*, *26*(4), 42–65.

Buzan, T., & Buzan, B. (2006). *The mind map book*. Harlow, England: BBC Active.

Byrnes, H., Maxim, H. H., & Norris, J. M. (2010). Realizing advanced foreign language writing development in collegiate education: Curricular design, pedagogy, assessment. *The Modern Language Journal*, *94*, (supplement).

Byrnes, H., & Sinicrope, C. (2009). Advancedness and the development of relativization in L2 German: A curriculum-based longitudinal study. In L. Ortega & H. Byrnes (Eds.), *The longitudinal study of advanced L2 capacities* (pp. 125-154). New York, NY, Routledge.

Cai, J. (2007). Zhuanxing Shiqide Woguo Daxue Yingyu Jiaoxue Tezhenghe Duice Yanjiu. [Characteristics and solutions of college English teaching in transition] *Foreign Language Teaching and Research, 1*, 27-32.

Cai, J. (2014). Guojia Zhanlue Shijiao Xiade Woguo Waiyu Jiaoyu Zhengce Tiaozheng [CET from the perspective of national strategy: turning right or left?] *Foreign Language Education, 2*, 40-44.

Cai, J. (2015). Internationalization and Englishnization: Language Policy is a Choice. *Technology Enhanced Foreign Language Education*, (3), 1.

Cai, J. (2016). An exploratory study on an integrated genre-based approach for the instruction of academic lexical phrases. *Journal of English for Academic Purposes, 24*, 58-74.

Cai, J. (2017). Cong Yuyan Shuxingkan Waiyu Jiaoxuede Gongjuhe Renwenxing [On instrumentality and renwen of foreign language teaching from the perspective of language properties] *Journal of Northeast Normal University (Philosophy and Social Sciences), 2*, 1-6.

Casanave, C. P. (2002). *Writing games: Multicultural case studies of academic literacy practices in higher education*. Mahwah, NJ: Routledge.

Carter, M. (1990). The idea of expertise: An exploration of cognitive and social dimensions of writing. *College Composition and Communication*, *41*, 265-286.

Cheng, A. (2005). *Genre and learning: Exploring learners and learning in the ESP genre-based framework of learning academic writing.* (Unpublished doctoral dissertation). The Pennsylvania State University, State College, PA, USA.

Cheng, A. (2007). Transferring generic features and recontextualizing genre awareness: Understanding writing performance in the ESP genre-based literacy framework. *English for Specific Purposes*, *26*, 287-307.

Cheng, A. (2008). Analyzing genre exemplars in preparation for writing: The case of an L2 graduate student in the ESP genre-based instructional framework of academic literacy. *Applied Linguistics*, *29*, 50-71.

Cheng, A. (2011). Language features as the pathways to genre: Students' attention to non-prototypical features and its implications. *Journal of Second Language Writing*, *20*(1), 69-82.

Chenoweth, N. A., & Hayes, J. R. (2001). Fluency in writing: Generating text in L1 and L2. *Written communication*, *18*(1), 80-98.

Chenoweth, N. A., & Hayes, J. R. (2003). The inner voice in writing. *Written communication*, *20*(1), 99-118.

Christie, F. (2002). The development of abstraction in adolescence in subject English. In M. J. Schleppegrell & M. C. Colombi (Eds.), *Developing advanced literacy in first and second languages* (pp. 45-66). New York, NY: Routledge.

Coakes, S. J., & Steed, L. (2009). *SPSS: Analysis without anguish using SPSS version 14.0 for Windows*. New York, NY: John Wiley & Sons.

Coe, R. M. (2002). The new rhetoric of genre: Writing political briefs. In A. M. Johns (Ed.), *Genre in the classroom: Multiple perspectives* (pp. 197-207). Mahwah, NJ: Erlbaum.

Cohen, A. D. (1994). Assessing written expression. In A. D. Cohen (Ed.), *Assessing language ability in the classroom* (2nd ed., pp. 303–357). Boston, MA: Heinle & Heinle.

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York, NY: Academic Press.

Colombi, M. C., & Schleppegrell, M. J. (2002) Theory and practice in the development of advanced literacy. In M. J. Schleppegrell & M. C. Colombi (Eds.), *Developing advanced literacy in first and second languages* (pp. 1-19). New York, NY: Erlbaum.

Coffin, C., & Hewings, A. (2005). IELTS as preparation for tertiary writing: Distinctive interpersonal and textual strategies. In L. Ravelli & R. A. Ellis (Eds.), *Analysing academic writing: Contextualised frameworks* (pp. 153-171). New York, NY: Continuum.

Connelly, L. M. (2009). Mixed methods studies. *Medsurg Nursing*, *18*(1), 31-33.

Connor, U. (1996). *Contrastive rhetoric: Cross-cultural aspects of second-language writing.* Cambridge, England: Cambridge University Press.

Cope, B., & Kalantzis, M. (1993). Introduction: How a genre approach to literacy can transform the way writing is taught. In B. Cope, & M. Kalantzis (Eds.), *The powers of literacy: A genre approach to teaching writing* (pp. 1-21). New York, NY: Routledge.

Cotos, E., Huffman, S., & Link, S. (2017). A move/step model for methods sections: Demonstrating rigour and credibility. *English for Specific Purposes, 46*, 90-106.

Crammond, J. G. (1998). The uses and complexity of argument structures in expert and student persuasive writing. *Written Communication*, *15*(2), 230-268.

Creswell, J.W., (2014). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles, CA: Sage.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London, England: Sage.

Cumming, A. (1989). Writing expertise and second-language proficiency. *Language learning, 39*(1), 81-135.

Cumming, A. (2001). Learning to write in a second language: Two decades of research. *International Journal of English Studies, 1*(2), 1–23.

Cumming, A. (2012). Comparative research, research syntheses, and adopting instruments in second language writing. *Journal of Second Language Writing, 21*(3), 298-299.

Cumming, A. (2016). Theoretical orientations to L2 writing. In M. M. Rosa, & K. M. Paul (Eds.), *Handbook of second and foreign language writing* (pp. 65-88). Boston, MA: de Gruyter.

Deng, L., Chen, Q., & Zhang, Y. (2016). *Developing Chinese EFL Learners' Generic Competence: A genre-based & process genre approach*. New York, NY: Springer.

Deng, L., Liu, H., Chen, P., Chen, Y., & Zhang, Y. (2003). Guochengxiezuofa de xitongyanjiu jiqi duidaxueyingyu xiezuojiaoxue gaigede qishi [A Systematic Study of Process Approach and Its Implications for the Teaching Reforms of College English Writing]. *Waiyu jiaoxue* [*Foreign Language Education*], 6, 58-62.

DePalma, M. J., & Ringer, J. M. (2013). Adaptive transfer, genre knowledge, and implications for research and pedagogy: A response. *Journal of Second Language Writing, 4*(22), 465-470.

Devitt, A. J. (2000). Integrating rhetorical and literary theories of genre. *College English*, *62*(6), 696-718.

Devitt, A. J. (2006). Generalizing about genre: New conceptions of an old concept. In P. Vandenberg, S. Hum, & J. Crary-Lemon (Eds.), *Relations, locations, positions: Composition theory for writing teachers* (pp. 84-102). Urbana, IL: National Council of Teachers of English.

Devitt, A. J. (2015). Genre performance: Johns Swales' Genre analysis and rhetorical-linguistic genre studies. *Journal of English for Academic Purposes, 19*, 44–51.

Dörnyei, Z. (2007). *Research methods in applied linguistics*. Oxford, England: Oxford University Press.

Dörnyei, Z., & Taguchi, T. (2010). *Questionnaires in second language research: Construction, administration, and processing* (2nd ed.). New York, NY: Routledge.

Dudley-Evans, T. (1995). Common-core and specific approaches to the teaching of academic writing. In D. Belcher & G. Braine (Eds.), *Academic writing in a second language: Essays on research and pedagogy* (pp. 293-312). Norwood, MA: Ablex.

Ellis, R., Johnson, K. E., Henry, A., & Roseberry, R. L. (1998). An evaluation of a genre-based approach to the teaching of EAP/ESP writing. *TESOL Quarterly*, *32*(1), 147-156.

Fayol, M. L., Alamargot, D., & Berninger, V. W. (2012). From cave writers to elite scribes to professional writers to universal writers, translation is fundamental to writing. In F. Michel, A. Denise, & W. B. Virginia (Eds.), *Translation of thought to written text while composing. Advancing theory, knowledge, research, methods, tools, and applications* (pp. 3–14). London, England: Psychology Press.

Feez, S. & Joyce, H. (1998). *Text-based syllabus design*. Sydney, NSW: National Centre for English Language Teaching and Research.

Ferretti, R. P., MacArthur, C. A., & Dowdy, N. S. (2000). The effects of an elaborated goal on the persuasive writing of students with learning disabilities and their normally achieving peers. *Journal of Educational Psychology, 92*(4), 694.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). London, England: Sage.

Flick, U. (Ed.). (2013). *The SAGE handbook of qualitative data analysis*. Thousand Oaks, CA: Sage.

Flower, L., & Hayes, J. R. (1980). The cognition of discovery: Defining a rhetorical problem. *College composition and communication, 31*(1), 21-32.

Flowerdew, L. (2005). Integrating traditional and critical approaches to syllabus design: The 'what', the 'how' and the 'why'? *Journal of English for Academic Purposes*, *4*, 135-147.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication, 32*(4), 365-387.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2011). How to Design and Evaluate Research in Education. New York, NY: McGraw-Hill.

Freedman, A. (1999). Beyond the text: Towards understanding the teaching and learning of genres. *TESOL Quarterly*, *33*, 764-767.

Galbraith, D. (2009). Cognitive models of writing. *German as a Foreign Language*, *2-3*, 7-22.

Geisler, C. (1994). Academic Literacy and the Nature of Expertise: Reading, Writing, and Knowing in Academic Philosophy. Mahwah, NJ: Erlbaum.

Gass, S. (2015). Experimental research. In B. Paltridge, & A. Phakiti (Eds.), *Research methods in applied linguistics: A practical resource* (pp. 101-117). London, England: Bloomsbury Academic.

Gentil, G. (2011). A biliteracy agenda for genre research. *Journal of Second Language Writing*, *20*(1), 6-23.

Gillespie, A., Olinghouse, N. G., & Graham, S. (2013). Fifth-grade students' knowledge about writing process and writing genres. *The Elementary School Journal*, *113*(4), 565-588.

Glasswell, K., Parr, J., & Aikman, M. (2001). *Development of the asTTle writing assessment rubrics for scoring extended writing tasks*. (Unpublished asTTle project technical report). The University of Auckland, Auckland, New Zealand.

Gosden, H. (1998). An aspect of holistic modeling in academic writing: Propositional clusters as a heuristic for thematic control. *Journal of Second Language Writing, 7*(1), 19-41.

Graham, S. (2012). Writing. In P. A. Alexander & H. W. Philip (Eds.), *Handbook of educational psychology*, (pp. 457–478). Mahwah, NJ: Erlbaum.

Guba, E. G., & Yvonna, S. L. (1994). Competing Paradigms in Qualitative Research, In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 163-194). Thousand Oaks, CA: Sage.

Guo, Y., & Xu, J. F. (2013). Woguo daxueyingyu jiaocai shiyongqingkuang diaochayanjiu [A Survey on the Use and Evaluations of College English Teaching Materials among Non-English Major College Students]. *Waiyu Xuekan* [*Foreign Language Research*]*, 6,* 102-108.

Hafner, C. A. (2014). Embedding digital literacies in English language teaching: Students' digital video projects as multimodal ensembles. *TESOL Quarterly*, *48*(4), 655-685.

Hammond, J., & Macken-Horarik, M. (1999). Critical literacy: Challenges and questions for ESL classrooms. *TESOL Quarterly*, *33*, 528-544.

Hamp-Lyons, L. (1990). Second language writing: Assessment issues. In B. Kroll (Eds.), *Second language writing: Research insights for the classroom* (pp. 69-87). Cambridge, England: Cambridge University Press.

Hansen, J. G. (2000). Interactional conflicts among audience, purpose, and content knowledge in the acquisition of academic literacy in an EAP course. *Written Communication*, *17*(1), 27-52.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education, 11*(1), 33-49.

Hayes, J. R., & Flower, L. S. (1983). A Cognitive Model of the Writing Process in Adults. Carnegie-Mellon University. https://files.eric.ed.gov/fulltext/ED240608.

Hayes, J. R., & Hatch, J. A. (1999). Issues in measuring reliability: Correlation versus percentage of agreement. *Written Communication, 16*(3), 354-367.

Hirose, K. (2003). Comparing L1 and L2 organizational patterns in the argumentative writing of Japanese EFL students. *Journal of Second Language Writing*, *12*(2), 181-209.

Hirvela, A. (2011). Writing to learn in content areas: Research insights. In R. M. Manchon (Eds.), *Learning-to-write and writing-to-learn in an additional language* (pp. 37-60). Philadelphia, PA: Benjamins.

Hirvela, A., Hyland, K., & Manchón, R. M. (2016). Dimensions in L2 writing theory and research: Learning to write and writing to learn. In M. M. Rosa, & K. M. Paul (Eds.), *Handbook of second and foreign language writing* (pp. 45-63). Boston, MA: de Gruyter.

Hu, K., & Xie, L. (2014). Woguo daxue yingyujiaoxuede weilai fazhanfangxiang yanjiu [Study on the future development of college English teaching in China]. *Waiyu jie* [*Foreign Language World*], 3, 12-20.

Hu, X. Y. (2003). Guocheng xiezuofa jiqi yingyong [Process Writing Approach and Its Using]. Waiyu yu Waiyujiaoxue *[Foreign Language and Their Teaching], 9*, 59-60.

Huang, J. & Li, M. (2012). Guocheng ticaijiaoxuefa zai shiyongyingyuxiezuoke zhongde yingyongyanjiu [Application of the genre-process approach in practical English writing course]. *Waiyu jiaoxuelilun yu shijian* [*Foreign Language Learning Theory and Practice*], 2, 55-59.

Huang, J. C. (2014). Learning to write for publication in English through genre-based pedagogy: A case in Taiwan. *System*, *45*, 175-186.

Huang, Y., & Zhang, L. J. (2020). Does a process-genre approach help improve students' argumentative writing in English as a foreign language? Findings from an intervention study. *Reading and Writing Quarterly, 36*(4), 339-364.

Hyerle, D.H., & Alper, L. (Eds.). (2011). Student successes with thinking maps: school-based research, results, and models for achievement using visual tools. Thousand Oaks, CA: Corwin.

Hyland, K. (1990). A genre description of the argumentative essay. *RELC Journal*, *21*(1), 66-78.

Hyland, K. (2000). Disciplinary discourse: Social interactions in academic writing. Ann Arbor, Michigan: University of Michigan Press.

Hyland, K. (2003). Genre-based pedagogies: A social response to process. *Journal of Second Language Writing*, 12, 17-29.

Hyland, K. (2004). *Genre and second language writing.* Ann Arbor, Michigan: University of Michigan Press.

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

Hyland, K. (2019). Second Language Writing (2nd ed.). Cambridge, England: Cambridge University Press.

Hyland, K. (2011). Learning to write: Issues in theory, research, and pedagogy. In R. M. Manchón (eds.), *Learning-to-write and writing-to-learn in an additional language,* (pp. 17−35). Amsterdam, PA: Benjamins.

Hyon, S. (1996). Genre in three traditions: Implications for ESL. *TESOL Quarterly*, *30* (4), 693-722.

Hyon, S. (2001). Long-term effects of genre-based instruction: A follow-up study of an EAP reading course. *English for Specific Purposes*, *20*, 417-438.

Hyon, S. (2002). Genre and ESL reading: A classroom study. In A. M. Johns (Eds.)*, Genre in the classroom: Multiple perspectives,* (pp.121-141). Mahwah, NJ: Erlbaum.

Jacobs, H. L., Zinkgraf, S. A., Wormuth, D. R., Hartfiel, V. F., & Hughey, J. B. (1981). Testing ESL composition: A practical approach. Rowley, MA: Newbury House.

Jin, G. (2016). *Genre knowledge for intercultural communication: A contrastive genre analysis of thesis introductions and literature reviews written in China, New Zealand and America.* (Unpublished doctoral dissertation). The University of Auckland, Auckland, New Zealand.

Johns, A. M. (2008). Genre awareness for the novice academic student: An ongoing quest. *Language Teaching, 41*, 237-252.

Johns, A. M. (2011). The future of genre in L2 writing: Fundamental, but contested, instructional decisions. *Journal of Second Language Writing*, *20*(1), 56-68.

Johns, A. M., Bawarshi, A., Coe, R. M., Hyland, K., Paltridge, B., Reiff, M. J., & Tardy, C. (2006). Crossing the boundaries of genre studies: Commentaries by experts. *Journal of Second Language Writing*, *15*(3), 234-249.

Johnson, R. B., & Gray, R. (2010). A history of philosophical and theoretical issues for mixed methods research. In T. Abbas, & T. Charles (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 69-94). London, England: Sage.

Johnstone, K. M., Ashbaugh, H., & Warfield, T. D. (2002). Effects of repeated practice and contextual-writing experiences on college students' writing skills. *Journal of Educational Psychology*, *94*(2), 305.

Jonsson, A., & Svingby, G. (2007). The use of scoring rubrics: Reliability, validity and educational consequences. *Educational Research Review*, *2*(2), 130-144.

Jwa, S. (2015). *Genre knowledge development: Tracing trajectories of L2 writers' transitions to different disciplinary expectations in college writing.* (Unpublished doctoral dissertation). The University of Arizona, Tucson, Arizona, USA.

Kellogg, R. T. (1996). A model of working memory in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 57–71). Mahwah, NJ: Erlbaum.

Kolb, D. A. (2014). Experiential learning: Experience as the source of learning and development (2nd ed.) Bergen County, NJ: Pearson.

Kormos, J. (2011). Task complexity and linguistic and discourse features of narrative writing performance. *Journal of Second Language Writing, 20*(2), 148–161.

Kuhn, D. (1991). *The skills of argument. Cambridge*, England: Cambridge University Press.

Kuhn, T. S. (2012). *The structure of scientific revolutions* (4th ed.). Chicago, IL: University of Chicago Press.

Kumaravadivelu, (2001). Toward a postmethod pedagogy. *TESOL Quarterly*, *35*(4), 537-560.

Kuteeva, M. (2013). Graduate learners' approaches to genre-analysis tasks: Variations across and within four disciplines. *English for Specific Purposes*, *32*(2), 84-96.

Kuteeva, M., & Negretti, R. (2016). Graduate students' genre knowledge and perceived disciplinary practices: Creating a research space across disciplines. *English for Specific Purposes*, *41*, 36-49.

Lantolf, J. P., & Beckett, T. G. (2009). Sociocultural theory and second language acquisition. *Language Teaching, 42*(4), 459-475.

Lantolf, J. P., & Poehner, M. E. (Eds.). (2008). *Sociocultural theory and the teaching of second languages*. London, England: Equinox.

Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. New York, NY: Routledge.

Lewin, K. (1952). *Field theory in social science: Selected theoretical papers*. London, England: Tavistock.

Lingard, L., & Haber, R. (2002). Learning medical talk: How the apprenticeship complicates current explicit/tacit debates in genre instruction. In M.C. Richard, L. Lorelei, & T. Tatiana (Eds.), *The rhetoric and ideology of genre: Strategies for stability and change* (pp. 155-170). Cresskill, NJ: Hampton.

Liu, B., Wang, Y., & Zhang, L. J. (2017). Renwuleixing dui zaixianyingyue xiezuorenwu zhunbei he chanchu de yingxiang [Effects of task type on planning and writing production in online EFL writing]. *Xiandai waiyu* [*Modern Foreign Languages*], 1, 102-113.

Liu, F., & Stapleton, P. (2014). Counterargumentation and the cultivation of critical thinking in argumentative writing: Investigating washback from a high-stakes test. *System, 45*, 117-128.

Liu, Y.L., & Li, S. Q. (2017). Yingyuxuexizhe yilunwen lunzhengjiegoutezheng yanjiu [Analysis of Argument Structure in Chinese EFL Argumentative Writing]. *Jiefangjun waiguoyuxueyuan xuebao* [*Journal of PLA University of Foreign Languages*], 1, 100-107.

Lu, Y. (2010). *Cognitive factors contributing to Chinese EFL learners' L2 writing performance in timed essay writing*. (Unpublished doctoral dissertation). Georgia State University, GA, USA.

MacDonald, S. P. (1994). Professional academic writing in the humanities and social sciences. Carbondale, IL: Southern Illinois University Press.

Manchón, R. M., Roca de Larios, J., & Murphy, L. (2007). A review of writing strategies: Focus on conceptualizations and impact of first language. In. A.D. Cohen, & E. Macaro (Ed.), *Language learner strategies: Thirty years of research and practice*, (pp. 229-250). Oxford, England: Oxford University Press.

Manchon, R. (Ed.). (2011). Learning-to-write and writing-to-learn in an additional language. Amsterdam, PA: Benjamins.

Martin, J. R. (2009). Genre and language learning: A social semiotic perspective. *Linguistics and Education*, *20*, 10-21.

Martin, E. (2011). Intertextuality: an introduction. *The Comparatist, 35*(1), 148-151.

Martin, J. R., & Rose, D. (2008). *Genre relations: Mapping culture*. London, England: Equinox.

Matsuda, P. K. (2003). Process and post-process: A discursive history. *Journal of Second Language Writing, 12*, 65-83.

Means, M. L., & Voss, J. F. (1996). Who reasons well? Two studies of informal reasoning among children of different grade, ability, and knowledge levels. *Cognition and Instruction*, *14*(2), 139-178.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage.

Miller, C. (1984). Genre as social action. *Quarterly Journal of Speech, 70*, 151-167.

Miller, C. R., & Shepherd, D. (2009). Questions for genre theory from the blogosphere. In. J. Giltrow, & S. Dieter (Ed.), *Genres in the Internet: Issues in the Theory of Genre* (pp. 263-290). Amsterdam, PA: Benjamins.

Ministry of Education of the People's Republic of China. (2001a). *Jiaoyubu guanyu jiji tuijin xiaoxue kaishe yingyu kecheng de zhidao yijian* [*Guidance of the Ministry of Education on promoting English curriculum in primary schools*]. Retrieved from http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_711/200407/665.html

Ministry of Education of the People's Republic of China. (2000). *Quanrizhi Putong Gaoji Zhongxue Yingyu Jiaoxue Dagang* (shiyan xiudingban) [*The Senior High School English Syllabus* (revised version)]. Beijing, China: People's Education Press.

Ministry of Education of the People's Republic of China. (2001b). Yiwujiaoyu Kecheng Shezhi Shiyan Fangan [Compulsory Education Syllabus (experimental version)]. Retrieved from http://www.moe.gov.cn/srcsite/A26/s7054/200111/t20011121_166076.html

Ministry of Education. (2007). *College English curriculum requirements*. Beijing, China: Higher Education Press.

Ministry of Education of the People's Republic of China. (2008) Quanrizhi Chujizhongxue Yingyujiaoxue Dagang (Shiyong Xiudingban) [*The Junior High*

School English Syllabus (revised version)]. Beijing, China: People's Education Press.

Mitchell, S., & Andrews, R. (1994). Learning to operate successfully in advanced level history. In A. Freedman, & P. Medway (Eds.), *Learning and teaching genre* (pp. 81-103). Portsmouth, NH: Boynton/Cook.

Mohan, B., & Beckett, G. H. (2001). A functional approach to research on content-based language learning: Recasts in causal explanations. *The Canadian Modern Language Review, 58*, 1, 133-155.

Mustafa, Z. (1995). The effect of genre awareness on linguistic transfer. *English for Specific Purposes*, *14,* 247-256.

Nadell, J., McMeniman, L., & Langan, J. (1994). *The Macmillian writer: Rhetoric, reader, hand- book (2nd ed.)*. New York, NY: Macmillian.

National College English Teaching Advisory Board under the Ministry of Education. (2017). *Daxue yingyu jiaoxue zhinan [Guidelines on College English Teaching]*. http://sfs.ahu.edu.cn/2019/0402/c15142a197508/pagem.psp

Negretti, R., & Kuteeva, M. (2011). Fostering metacognitive genre awareness in L2 academic reading and writing: A case study of pre-service English teachers. *Journal of Second Language Writing, 20*, 95-110.

Negretti, R. (2015). Calibrating genre: Metacognitive judgments and rhetorical effectiveness in academic writing by L2 graduate students. *Applied Linguistics*, *38*(4), 512-539.

Nicholas, J., & Nicholl, J. (1994). *Models for effective writing*. Needham Heights, MA: Allyn & Bacon.

Nussbaum, E. M., & Kardash, C. M. (2005). The effects of goal instructions and text on the generation of counterarguments during writing. *Journal of Educational Psychology, 97*, 157–169.

Nussbaum, E. M., & Schraw, G. (2007). Promoting argument-counterargument integration in students' writing. *Journal of Experimental Education,*76(1), 59-92.

Nussbaum, E. M. (2008). Using argumentation vee diagrams (AVDs) for promoting argument-counterargument integration in reflective writing. *Journal of Educational Psychology, 100*(3), 549.

Ong, J., & Zhang, L. J. (2010). Effects of task complexity on the fluency and lexical complexity in EFL students' argumentative writing. *Journal of Second Language Writing*, *19*(4), 218-233.

Ortega, L. (2011). Reflections on the learning-to-write and writing-to-learn dimensions of second language writing. In M.M. Rosa (Eds.), *Learning-to-write and writing-to-learn in an additional language* (pp. 237−250). Amsterdam, PA: Benjamins.

Oxford, R. L. (2003). Toward a more systematic model of L2 learner autonomy. In D. Palfreyman & R. C. Smith (Eds.), *Learner autonomy across cultures: Language education perspectives* (pp. 74–91). New York, NY: Palgrave Macmillan.

Oxford, R. L., Rubin, J., Chamot, A. U., Schramm, K., Lavine, R., Gunning, P., & Nel, C. (2014). The learning strategy prism: Perspectives of learning strategy experts. *System, 43*, 30–49.

Paltridge, B. (2014). Genre and second-language academic writing. *Language Teaching*, *47*(3), 303-318.

Paltridge, B. (2017). Context and the teaching of academic writing: Bringing together theory and practice. In B. John, S. Neomy, & W. Rosemary (Eds.), *Teaching writing for academic purposes to multilingual students* (pp. 23-37). New York, NY: Routledge.

Pang, T. T. T. (2002). Textual analysis and contextual awareness building: A comparison of two approaches to teaching genre. In A. M. Johns (Eds.), *Genre in the classroom: Multiple perspectives* (pp. 145-161). Mahwah, NJ: Erlbaum.

Polio, C. (2017). Second language writing development: A research agenda. *Language Teaching*, *50*(2), 261-275.

Porter, J. E. (1986). Intertextuality and the discourse community. *Rhetoric Review*, *5*, 34-47.

Punch, K. F. (2009). *Research methods in education.* Thousand Oaks, CA: Sage.

Qin, J., & Karabacak, E. (2010). The analysis of Toulmin elements in Chinese EFL university argumentative writing. *System, 38*(3), 444-456.

Qin, Z. X. (2009). Guonei daxueyingyu yanjiuxianzhuangji fazhanqushi fenxi [An overview of college English writing studies in China between 2000 and 2007]. Xiandai Waiyu [*Modern Foreign Languages*], (*2*), 195-204.

Ramage, J., Bean, J. C., & Johnson (1998). *Writing arguments: A rhetoric with readings.* Boston, MA: Allyn and Bacon.

Reid, J. (1988). *The process of composition.* Englewood Cliffs, NJ: Prentice Hall Regents.

Riazi, M., Shi, L., & Haggerty, J. (2018). Analysis of the empirical research in the journal of second language writing at its 25th year (1992–2016). *Journal of Second Language Writing, 41*, 41-54.

Richards, J. C. (2001). *Curriculum development in language teaching*. Cambridge, England: Cambridge University Press.

Robinson, P. (2001). Task complexity, task difficulty, and task production: Exploring interactions in a componential framework. *Applied Linguistics*, *22* (1), 27–57.

Ryshina-Pankova, M. (2010). Toward mastering the discourses of reasoning: Use of grammatical metaphor at advanced levels of foreign language acquisition. *The Modern Language Journal*, *94*(2), 181-197.

Salager-Meyer, F. (1991). Reading expository prose at the post-secondary level: The influence of textual variables on L2 reading comprehension (a genre approach). *Reading in a Foreign Language*, *8*, 645-662.

Sammons, P. (2010). The contribution of mixed methods to recent research on educational effectiveness. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of Mixed Methods Research* (pp. 697-724). London, England: Sage.

Schleppegrell, M. J. (2006). The linguistic features of advanced language use: The grammar of exposition. In H. Byrnes (Ed.), *Advanced language learning: The contribution of Halliday and Vygotsky* (pp. 134-146). London, England: Continuum.

Schoonen, R., Gelderen, A. V., Glopper, K. D., Hulstijn, J., Simis, A., Snellings, P., & Stevenson, M. (2003). First language and second language writing: The role of linguistic knowledge, speed of processing, and metacognitive knowledge. *Language Learning, 53*(1), 165-202.

Schreier, M. (2013). Qualitative Content Analysis. In U. Flick (Ed.), *The SAGE handbook of qualitative data analysis* (pp. 170-183). London, England: Sage.

Schwarz, B. B., Neuman, Y., Gil, J., & Ilya, M. (2003). Construction of collective and individual knowledge in argumentative activity. *The Journal of the Learning Sciences*, *12*(2), 219-256.

Sengupta, S. (1999). Rhetorical consciousness raising in the L2 reading classroom. *Journal of Second Language Writing*, *8*, 291-319.

Spalter-Roth, R. (2000). Gender issues in the use of integrated approaches. In M. Bamberger (Ed.), *Integrating quantitative and qualitative research in development projects* (pp. 47–53*)*. Washington, WA: World Bank.

Stapleton, P. (2001). Assessing critical thinking in the writing of Japanese university students: Insights about assumptions and content familiarity. *Written Communication*, *18*(4), 506-548.

Stapleton, P., & Wu, Y. A. (2015). Assessing the quality of arguments in students' persuasive writing: A case study analyzing the relationship between surface structure and substance. *Journal of English for Academic Purposes*, *17*, 12-23.

Swales, J. M. (2011) *Aspects of article Introductions.* Ann Arbor, MI: University of Michigan Press.

Swales, J.M. (1990). *Genre analysis: English in academic and research settings.* Cambridge, England: Cambridge University Press.

Tardy, C. M. (2003). A genre system view of the funding of academic research. *Written Communication*, *20* (1), 7-36.

Tardy, C. (2009). *Building Genre Knowledge*. Wes Lafayette, IN: Parlor.

Tardy, C. (2012). A rhetorical genre theory perspective on L2 writing development. In M. Rose (Ed.) *L2 Writing development: Multiple perspectives* (pp. 165-190). Boston, MA: de Gruyter.

Tarone, E., Dwyer, S., Gillette, S., & Icke, V. (1981). On the use of the passive in two astrophysics journal papers. *The ESP Journal*, *1*(2), 123-140.

Teng, L. (2016). *Fostering strategic second-language writers: a study of Chinese English-as-a-foreign-language (EFL) writers' self-regulated learning strategies, self-efficacy and motivational beliefs* (Unpublished PhD thesis). The University of Auckland, Auckland, New Zealand.

Toulmin, S. E. (1958). *The use of argument.* Cambridge, England: Cambridge University Press.

Toulmin, S. E. (2003). *The use of argument (updated edition).* Cambridge, England: Cambridge University Press.

Udomyamokkul, W. (2004). *A Genre-based approach to teaching argumentative writing: effects of EFL students' writing performance.* (Unpublished master thesis). Suranaree University of Technology, Nakhon Ratchasima, Thailand.

Uzun, K. (2016). Developing EAP writing skills through genre-based instruction. *International Journal of Educational Researchers,* 7(2), 25-38.

Uzun, K. (2017). The relationship between genre knowledge and writing performance. *Journal of Teaching English for Specific and Academic Purposes*, *5*(2), 153-162.

Van Beuningen, C., De Jong, N. H., & Kuiken, F. (2012). Evidence on the effectiveness of comprehensive error correction in second language writing. *Language Learning*, *62*(1), 1–41.

Verspoor, M., Schmid, M. S., & Xu, X. (2012). A dynamic usage based perspective on L2 writing. *Journal of Second Language Writing, 21*(3), 239-263.

Vesterman, W. (2000). *Reading and writing short arguments*. Mountain View, CA: Mayfield.

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wang, C (2005). Waiyu xiechangfa [The length approach to foreign language learning]. *Zhongguo waiyu* [*Foreign Languages in China*], *1*, 45-49.

Wang, W. (2017). Learner characteristics in an EAP thesis-writing class: Looking into students' responses to genre-based instruction and pedagogical tasks. *English for Specific Purposes*, *47*, 52-60.

Wei, X., Zhang, L. J., & Zhang, W. (2020). Associations of L1-to-L2 rhetorical transfer with L2 writers' perception of L2 writing difficulty and L2 writing. proficiency. *Journal of English for Academic Purposes*, *47*, 1-14.

Wen, Q. F. & Zhang L. L. (2016) Waiyuzhuanye daxuesheng Sibianqinxiang bianhuade genzongyanjiu [The development of critical thinking disposition of foreign language majors: A longitudinal study]. *Waiyu dianjiaohua jiaoxue* [*Technology Enhanced Foreign Language Education*], (1), 3-8.

Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker, 9*(5), 2-3.

Wette, R. (2010). Evaluating student learning in a university-level EAP unit on writing using sources. *Journal of Second Language Writing*, *19*(3), 158-177.

Wette, R. (2017). Using mind maps to reveal and develop genre knowledge in a graduate writing course. *Journal of Second Language Writing, 38*, 58-71.

Winne, P. H., & Hadwin, A. F. (2010). Self-regulated learning and socio-cognitive theory. In P. Penelope, B. Eva, & B. McGaw (Eds.), *International Encyclopedia of Education* (pp. 503–508). Oxford, England: Elsevier.

Wolfe-Quintero, K., Inagaki, S., & Kim, H. Y. (1998). *Second language development in writing: Measures of fluency, accuracy, & complexity*. Honolulu, HI: University of Hawaii Press.

Wu, W., & Cui, G. (2016). Guocheng ticaijiaoxuefa zai yingyu wenxianzongshu xiezuojiaoxue zhongde shijianyanjiu [A practical study of the process genre approach in the English literature review writing teaching]. *Jiefangjun waiguoyuxueyuan xuebao* [*Journal of PLA University of Foreign Languages*], 2, 73-81.

Xu, F (2015). Xueshuyingyu xiezuoyanjiu shuping [A critical review of academic English writing studies]. *Waiyu jiaoxue yu yanjiu* [*Foreign Language Teaching and Research*], 1, 94-105.

Xu, J., & Fan, Y. (2017). The evolution of the college English curriculum in China (1985–2015): changes, trends and conflicts. *Language Policy, 16*(3), 267-289.

Yang, L. P. & Han G. (2012). Jiyu xiangmushi xueximoshide daxueyingyu xueshuxiezuo jiaoxueshizheng yanjiu [An empirical study of academic writing teaching to undergraduates based on the project-based learning model]. *Wai yu jie* [*Foreign Language World*], 5, 8-16.

Yasuda, S. (2011). Genre-based tasks in foreign language writing: Developing writers' genre awareness, linguistic knowledge, and writing competence. Journal of Second Language Writing, 20(2), 111-133.

Yasuda, S. (2012). *The implementation of genre-based tasks in foreign language writing instruction: A longitudinal study of writers' rhetorical awareness, writing quality, and lexicogrammatical choices.* (Unpublished doctoral dissertation). University of Hawaii, Honolulu, USA.

Yasuda, S. (2015). Exploring changes in FL writers' meaning-making choices in summary writing: A systemic functional approach. *Journal of Second Language Writing*, *27*, 105-121.

Yasuda, S. (2017). Toward a Framework for Linking Linguistic Knowledge and Writing Expertise: Interplay Between SFL-Based Genre Pedagogy and Task-Based Language Teaching. *TESOL Quarterly*, *51*(3), 576-606.

Yu, F. & Zhang, H. (1996). Xiezuojiaoxue zhongde chengguojiaoxuefa guochengjiaoxuefa he neirongjiaoxuefa qianxi [A brief analysis of "results-based method", "process-based method", and "content-based method" in writing teaching]. *Waiyu jie* [*Foreign Language World*], 3, 38-40.

Zamel, V. (1982). Writing: The process of discovering meaning. *TESOL Quarterly, 16*, 195-209.

Zhang, L. J. (2013). Second language writing as and for second language learning. *Journal of Second Language Writing, 22*(4), 446–447.

Zhang, L. J. (2016). Reflections on the pedagogical imports of western practices for professionalizing ESL/EFL writing and writing-teacher education. *Australian Review of Applied Linguistics*, *39*(3), 203-232.

Zhang, L. J. (2014). A dynamic metacognitive systems perspective on developing academic writing skills: Writing across the genre and the curriculum. In H. P. Widodo & N. T. Zacharias (Eds.), *Recent issues in English language education: Challenges and directions* (pp. 161-179). Surakarta, Central Java: Sebelas Maret University Press.

Zhang, T. (2008). Daxueyingyu xiezuoke jiaoxue xianzhuangde diaocha yu jianyi [Investigation and suggestion on the present situation of college English writing teaching]. *Jiaoyu tansuo* [*Education Exploration*], 9, 15-16.

Zhang, W (2017). Chanchudaoxiangfa dui daxueyingyu xiezuoyingxiang de shiyanyanjiu [An experimental study on the effect of the production-oriented approach on college students'English writing quality]. *Xiandai Waiyu* [*Modern Foreign Languages*], 3, 377-385.

Zhang, W., Zhang, W., & Liu, M. (2011). Tongyongyingyu zhuanxiang xueshuyingyu jiaoxuede tansuo: Qinghuadaxue gongwai benkesheng yingyu jiaoxuegaige shexiang [The exploration from general English teaching to academic English teaching: a tentative plan for English teaching reform in Tsinghua university]. *Waiyu yanjiu* [*Foreign Language Research*], 5, 11-14.

Zhang, Z. (2013). Business English students learning to write for international business: What do international business practitioners have to say about their texts? *English for Specific Purposes*, *32*(3), 144-156.