

L1 and L2 Writing Strategies: A Study of Chinese Graduate Student Writers
Using Concurrent Think-aloud

by

Xiaoqian Guo
B.A., Zhengzhou University, 2010

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of the Requirements for the Degree of

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Abstract

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In the field of L2 (second language) writing, a great number of studies have been done to explore learners' writing processes and writing strategies since the last three decades. However, the relationship between learners' strategy use and writing performance is still not clear-cut, and researchers still debate about whether L1 (first language) writing processes and strategies are similar to or different from L2 writing processes and strategies. To explore these controversial issues, this study has examined the L1 and L2 academic writing processes of 35 Chinese ESL (English-as-a-second-language) learners by using concurrent think-aloud protocols and retrospective interviews.

In line with previous strategy studies, the findings of present study also revealed that learners selected, used, and evaluated a wide range of writing strategies (i.e., approach, rhetorical, communication, cognitive, metacognitive, affective, and social strategies) in both L1 and L2 tasks. Moreover, the results of qualitative and quantitative analyses indicated that the overall pattern of strategy use by learners was similar between L1 and L2. Specifically, learners tended to transfer their approach, rhetorical, communication, and cognitive strategies across languages. As for the correlations between writing strategies and writing scores, statistical tests did not detect any significant relationships between learners' strategy use and their writing performance in either the L1 writing task or the L2 writing task.

One main implication suggested by the present study is that learners should not only be encouraged to reflect on their L2 writing performance and strategy use, but also be provided with the opportunities to reconsider and reflect on how they usually approach and process L1 writing tasks.

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Chapter 1

Introduction

Every year, a great number of Chinese ESL (English-as-a-second-language) students come to North America pursuing higher education. According to Citizenship and Immigration Canada (2010), 26% (56,906) of 218,161 international students were Chinese students, who comprised the largest international student group in Canada in 2010. In 2010/11, China was also the largest source of international students in the United States that 21.8% of 723,277 international students came from China (Institute of International Education, 2011). Among those Chinese ESL students at North American universities, “approximately eighty percent are graduate students” (Huang & Brown, 2009, p. 634).

As the largest international student group in North America, Chinese graduate students’ academic writing ability attracts researchers’ and educators’ attention, because writing (i.e., research reports, thesis, dissertation) does play an important role in graduate students’ academic life. Due to the cultural and linguistic gaps, it is very challenging for Chinese ESL graduate students to meet the writing expectations of graduate courses at North American universities (Huang & Klinger, 2006; Huang & Rinaldo, 2009). Reviewing the first language (L1) and the second language (L2) writing literature, I found that only a few of studies (e.g., Leki, 1995; Mu & Carrington, 2007; Wong, 2005) examined Chinese ESL graduate students’ academic writing performance. However, these studies had small sample sizes. For example, five participants, three participants, and four participants were respectively recruited in Leki’s study (1995), Mu and Carrington’s study (2007), and Wong’s study (2005). For this reason, it is worthwhile to

carry out an empirical study on academic writing with Chinese ESL graduate students in North America.

In the area of L2 composing, the last 30 years have witnessed a growth of studies on learners' writing strategies, since the research interest has been shifted from writing productions to writing processes. A great variety of writing strategies used by language learners have been defined and classified in empirical studies (e.g., Abdullah, 2009; Chen, 2011; Chien, 2012; Mu & Carrington, 2007; Roca de Larios, Manchón, & Murphy, 2006, 2007; Roca de Larios, Manchón, Murphy, & Marin, 2008; Wong, 2005; Yang & Plakans, 2012). These studies did provide information about L2 writers' strategic behaviours or cognitive processes during composing. For instance, language learners recursively use strategies in combinations to achieve writing goals (Abdullah, 2009; Mu & Carrington, 2007); the writing strategies used by L2 writers seem to be overall similar, but there are differences in how they use those strategies (Abdullah, 2009; Wong, 2005); L2 writers' strategic behaviours are positively correlated with their writing performance (Chen, 2011; Yang & Plakans, 2012). However, there are still many research questions in this area needing to be answered. One of the most important issues is that researchers are still unclear about the relationship between writers' strategic behaviours and their writing performance. Moreover, few empirical studies have been done to investigate the transferability of writing strategy in different task situations between L1 and L2. Therefore, more writing studies focusing on not only L1 strategies but also L2 strategies are needed to fill these research gaps.

The present study was designed to understand the L1 and L2 strategies Chinese ESL graduate students writers employed in academic writing tasks. First, this study identified

and classified the strategies reported by participants when they attempted L1 (Chinese) and L2 (English) argumentative writing tasks. Second, I analyzed the identified L1 and L2 writing strategies to see whether learners transferred their strategies between L1 and L2. This study also addressed the concern about the relationship between language learners' L1/L2 strategy use and L1/L2 writing performance, indicated by their writing scores.

This thesis includes five chapters. This chapter is an Introduction Chapter. In Chapter two, I review relevant literature concerning the definitions and classifications of language learner strategies, the transferability of writing strategies from one language to another language, the uniqueness in L2 writing, the relationship between writing performance and strategy use, and the methods used to elicit language learner strategies. Then, I present the five research questions addressed by the present study. Chapter three introduces the information of participants, data collection methods, and data analyses. In Chapter three, I also present the coding scheme, which was used by the researchers in this study to document and categorize participants' strategic behaviours. Chapter four presents the results according to the five proposed research questions as well as the results of qualitative analyses. Chapter five discusses the main findings of this study and provides the pedagogical implications that learners should engage in research-like practices in classrooms for the purpose of self-exploring, self-monitoring, and self-evaluating the effective strategies for them. I also suggest that more understanding of learners' L1 writing processes can shed the light on their L2 writing processes as well as expand their language knowledge in L2. The Discussion Chapter also addresses some limitations of the present study and requests more studies to examine the issues concerning the

transferability of writing strategies between L1 and L2 and issues about the relationship between writing performance and language learners strategies.

Chapter 2

Literature Review

To investigate the nature of ESL writers' strategic behaviours when they perform academic writing tasks, I have reviewed a range of literature on language learner strategies, and especially recent studies on writing strategies. This literature review includes five sections: the different definitions and classifications of language learner strategies, the transferability of strategies between L1 and L2, the uniqueness in L2 writing, the relationship between writing performance and strategy use by learners, and the research methods used to elicit strategies. Finally in this chapter, five research questions addressed by this study are presented.

2.1 Definitions and Classifications of Language Learner Strategies

Since the mid-1970s, there have been developments in the field of language learner strategies. With the research interest shifted from behaviourism to cognitive science, studies have been performed to explore the cognitive processes involved in language learning and language use. One of the popular issues is language learner strategies. Although a broad range of language learner strategies have been identified by researchers (e.g., Abdullah, 2009; Chen, 2011; Chien, 2012; Huang, 2011; Oxford, 1990; Phakiti, 2003; Swain et al., 2009; Yang & Plakans, 2012; Zare & Nooreen, 2011), there is a lack of consensus about the definition and the classification of language learner strategies. Different terms have been used in SLA (second language acquisition) publications to refer language learner strategies, such as "language learning strategies", "language learner strategies", "strategic behaviours", and "self-regulated learning". Since the

present study tries to describe the strategies used by learners in a task situation, the term “language learner strategies”, including both language learning and language use strategies, is used in this thesis.

2.1.1 Definitions of language learner strategies

Actually, what confuse readers are not the various terms used for describing language learner strategies, but the meanings these terms refer to. Many scholars in the area have given their definitions for the strategies in language learning or language use contexts. One of early definitions was given by Wenden and Rubin (1987) that learning strategies were “any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information” (p. 19). Later, Richards, Platt, and Platt (1992) proposed that “learning strategies are *intentional* behavior and thoughts that learners make use of during learning in order to better help them understand, learn, or remember new information” (p. 209). Similarly, Cohen (1998) pointed out that the notion of *consciousness* was important in defining strategies: “language learning and language use strategies can be defined as those processes which are *consciously* selected by learners and which may result in action taken to enhance the learning or use of a second or foreign language, through the storage, retention, recall, and application of information about that language” (p. 4). With more and more empirical studies have explored language learner strategies, it is generally agreed by strategy experts (Oxford, 1990; Phakiti, 2003; Swain et al., 2009) that language learning or language use strategies, such as attending, planning, translating, and evaluating, are consciously used to regulate or reflect on cognitive processes, to acquire or manipulate the target language. According to the empirical studies in both language learning (e.g., Huang, 2004) and language use

contexts (e.g., Huang, 2010; Swain et al., 2009), *language learner strategies* are theoretically defined as learners' conscious and goal-oriented thoughts or behaviours for the purpose of performing or improving language learning or language performance. Based on this definition, *language learner strategies* in my study refer to learners' conscious thoughts or actions for completing a writing task or improving their task performance, such as attending, planning, translating, and editing; operationally, those conscious thoughts and behaviours are elicited through my participants' concurrent and post-task verbal reports when they perform writing tasks.

2.1.2 Classifications of language learner strategies

The categorization of language learner strategies is one major part in most strategy studies. Researchers (e.g., Oxford, 1990; Huang, 2010; Swain et al., 2009) have proposed many ways of categorizing language learner strategies.

Oxford's framework seems to be "the most inclusive taxonomy of language learning strategies" (Zare, 2012, p. 165). According to the purposes of strategies, Oxford (1990) clustered language learning strategies into six categories: *memory*, *cognitive*, *compensation*, *metacognitive*, *affective*, and *social* categories.

Memory strategies (e.g., using imagery) are used to relate new knowledge to existing knowledge when learners store and retrieve new information. *Cognitive strategies* (e.g., translating) involve the direct manipulation of the target language in order to understand and produce the language. *Compensation strategies*, such as guessing or using synonyms, enable learners to use or produce the language despite their missing knowledge in the target language. *Metacognitive strategies* (e.g., planning) examine the processes of language learning for the purpose of planning, monitoring, and evaluating effective

learning ways. *Affective strategies*, such as positive self-talk, refer to the behaviours of regulating affect. *Social strategies* involve the interaction with others or within oneself in order to improve learning.

Although Oxford's system (1990) has been widely used for classifying language learning strategies, it is worth noting that her framework describes the strategies only in language learning contexts. Oxford's system may not account for the strategies used by learners when they use the target language. Another six-category framework including *approach*, *communication*, *cognitive*, *metacognitive*, *affective*, and *social* categories, has been proposed based on the findings of two recent studies (Huang, 2010; Swain et al., 2009) on language learner strategies when learners work on specific L2 tasks. *Approach strategies* are used to help learners to approach a language task, such as identifying task requirements. Similar to compensation strategies in Oxford's classification, *communication strategies* (e.g., simplifying) "involve conscious plans for solving a linguistic problem in order to reach a communicative goal" (Huang, 2010, p. 251). Approach strategies identified in these two studies demonstrate the processes how learners utilize their existing knowledge to approach and solve task questions. Approach strategies, which help learners solve real-world problems, construct as an important part in learners' language ability. For this reason, it is essential for strategy researchers to take approach strategies into account if their research focus is task-specific strategies.

Since the current study was designed to explore writing strategies, I also reviewed recent writing strategy studies (e.g., Chen, 2011; Mu & Carrington, 2007; Wong, 2005) to know how writing researchers categorized learners' writing strategies. Chen (2011) used a strategy questionnaire and an interview to identify L2 (English) composing

strategies used by 132 Chinese EFL (English-as-a-foreign-language) college students in a writing task. The reported strategies were classified into six categories: memory, cognitive, compensation, metacognitive, affective, and social categories. The questionnaire used in Chen's study was designed based on Oxford's (1990) framework, which may explain why the reported strategies were in the same pattern as Oxford's classification. This was a limitation of Chen's study, which used a language learning based strategy questionnaire to elicit task-specific strategies. The identified strategy categories and individual strategies were under question.

With think-aloud protocols and retrospective interviews, Wong's study (2005) examined L2 (English) task-based writing strategies of four advanced Chinese ESL writers. The reported strategies were categorized into cognitive, metacognitive, and affective groups. The employment of concurrent verbal reports (think-aloud protocols) helped to reveal learners' cognitive activities during the writing task. However, the small sample size in Wong's study minimized the generalizability of its findings to all Chinese ESL writers.

In Mu and Carrington's research (2007), three Chinese ESL graduate students reported the strategies they thought they used in recent academic writings. Researchers qualitatively analyzed the data collected from interviews, questionnaire answers, retrospective discussions, and L2 writing samples. Four identified strategy categories were rhetorical, cognitive, metacognitive, and socio-affective categories. In their study, a new strategy category, *rhetorical* category, was added. "Rhetorical strategies refer to the strategies that writers use to organize and to present their ideas in writing conventions acceptable to native speakers of that language" (Mu & Carrington, 2007, p. 2). According

to Kaplan (1966), the cultural gaps between L1 and L2 were responsible for many rhetorical problems encountered by L2 learners. Mu and Carrington's research findings also provided the evidence that it was difficult for L2 writers to acquire rhetorical competence in the target language. Therefore, the inclusion of rhetorical strategy category should be an important point in L2 writing research.

Based on the strategy classifications found in four empirical studies (Huang, 2010; Mu & Carrington, 2007; Oxford, 1990; Swain et al., 2009) across language use and learning contexts, the present study summarized and used a seven-category list of strategies (see Appendix A) as a basis to identify and group writing strategies by ESL learners. The seven categories were *approach*, *rhetorical*, *communication*, *cognitive*, *metacognitive*, *affective*, and *social* categories. The seven strategy groups were further subcategorized into specific strategic behaviours. For example, *generating ideas*, *making choices regarding the topic*, *developing reasons for choosing what to say/do* were subcategories of the approach category. It is important to note that this scheme was just a start point for identifying strategies in my study. During the process of data coding and data analysis, this scheme kept being modified that I added some new strategies found in the present study and deleted the strategies not reported by my participants.

2.2 Transferability of Writing Strategies Between L1 and L2

In the area of L2 writing, the comparison between L1 and L2 composing processes is one of the most controversial issues. Although a great number of studies (e.g., Beare, 2000; Chang, 2008; Mu & Carrington, 2007; Schoonen et al., 2003; Ting, 1996) have compared L1 writing and L2 writing, researchers still debate about whether L1 writing processes can be transferred to L2 writing processes (Casanave, 2004). Especially, few

empirical studies investigated the transferability of writing strategies from one language to another language, even though there was an assumption that the transfer of strategies could happen “from the L1 to the L2, and from the L2 to additional languages and even back to the L1” (Chamot, 2005, p. 42).

At a qualitative level, three L2 writing studies (Chang, 2008; Mu & Carrington, 2007; Ting, 1996) with Chinese ESL learners provided the evidence that learners used similar writing strategies in both L1 (Chinese) tasks and L2 (English) tasks. To understand the interaction between L1 (Chinese) strategies and L2 (English) strategies, Ting (1996) studied his own writing processes and found that many of his Chinese composing strategies were transferred to L2 writing positively. Mu and Carrington’s research (2007) worked with three Chinese ESL graduate students who reported their L1 and L2 academic writing strategies. The three participants reported that they would use similar metacognitive, cognitive, and social/affective strategies across languages. The results of Chang’s (2008) study with four Chinese ESL writers indicated that the employment of writing strategies did not vary greatly between L1 and L2. For example, similar writing strategies were employed for planning, translating, and reviewing in L1 and L2 composition processes.

One possible theoretical construct to explain why learners transfer some writing strategies across languages is Cummins’ (1980) Interdependence Hypothesis that “cognitive/academic proficiencies in both L1 and L2 are manifestations of the same underlying dimension” (p. 175). Here, cognitive/academic proficiencies refer to a set of common abilities that underling both L1 and L2, and cognitive/academic proficiencies are closely related to the ability of developing literacy skills in languages. Cummins

(1980) explained his hypothesis that one's cognitive/academic proficiencies in L1 and L2 were interdependent and "the development of proficiency in L2 is partially a function of the level of L1 proficiency at the time when intensive exposure to L2 is begun" (p. 179). He pointed out that this similar pattern of correlations between L1 and L2 might exist in many aspects of verbal and non-verbal ability.

According to Roca de Larios, Murphy, and Marin's review of L2 writing literature (2002), Interdependence Hypothesis has been used as the theoretical construct to explain the potential transferability of writing skills from one language to another language. For example, Takayama's study (2010) on the L1 and L2 writing processes of 21 adult Japanese ESL learners was performed to empirically validate Interdependent Hypothesis. Takayama found some significant and positive correlations in learners' writing skills (e.g., organization, generating content) between L1 and L2.

As for the writing strategies, Weijen (2009) claimed that the transferability from L1 to L2 might be partial or limited. According to Weijen, L1 writers were able to select and combine different strategies in response to specific tasks, but L2 writers tended to use the strategies in a particular pattern or form, which seemed to be a common trait independent of learners' variables and tasks. Weijen concluded that future strategy studies should explore this controversial issue whether learners' writing strategic behaviours were consistent across languages.

2.3 Uniqueness in L2 Writing

While comparing L1 composing processes and L2 composing processes, many researchers (e.g., Jannausch, 2002; Manchon, Murphy, & Roca de Larios, 2007; Weijen, Bergh, Rijlaarsdam, & Sanders, 2009) have investigated the specificities of L2 writing

processes. Silva (1993) claimed that "L2 writing is strategically, rhetorically, and linguistically different in important ways from L1 writing" (p. 669). For example, *the use of L1* is a common feature in L2 writing (Jannausch, 2002; Weijen, Bergh, Rijlaarsdam, & Sanders, 2009); the allocation of time to L2 writing stages are different from that to L1 writing stages (Roca de Larios, Manchón, & Murphy, 2006; Roca de Larios et al., 2008); and in terms of the skill of paraphrasing in the writing, L1 writers tended to use more moderate and substantial revisions, but L2 writers tended to use more near copies (Keck, 2006).

One of the most characteristic features of L2 writing is *the use of L1* during composing. According to Manchón, Roca de Larios, and Murphy (2007), *the use of L1* in the L2 writing happened in different forms (e.g., generating ideas in L1, generating text by translating from L1 to L2), which were determined by the requirements of the writing task and the variables of the writer. The findings of two studies (Jannausch, 2002; Weijen, Bergh, Rijlaarsdam, & Sanders, 2009) indicated that both beginning and advanced L2 writers, to some extent, used their mother tongue to solve problems in L2 writing tasks. Researchers (Manchon, Murphy, & Roca de Larios, 2007) also concluded that L2 writers resorted to their L1 not only in the text planning stage but also in the text generating stage.

Weijen and three others researchers (2009) examined 20 writers' use of their L1 (Dutch) in L2 (English) argumentative writing tasks with think-aloud protocols. Analyzing learners' three conceptual activities: generating ideas, planning, and metacomments, Weijen and his fellow researchers observed: "L1 use during L2 writing is negatively related to L2 text quality, at least for metacomments" (p. 235). In other words, making

metacognitive comments or carrying out other cognitive activities in L1 would interfere with L2 composing.

In contrast, some writing experts pointed out that the employment of L1 could have facilitative effects on the L2 writing. According to Qi (1998), L2 writers turned to use their L1 so that their ideas could be expressed more quickly, efficiently, and clearly, which caused the least interruption in cognitive processes. Cohen and Brooks-Carson (2001) also proposed that the use of L1 “serves to reduce the load on working memory since instead of going from the concepts to their L2 representation, the L2 writers are first expressing the concepts in the L1 and then translating to the L2” (p. 181).

2.4 Relationship Between Writing Performance and Strategy Use

During the last 30 years, there has been a widespread research interest in L2 writing processes and strategies. Even though a parallel research activity has been driven by the interest, a review of the publications in the field indicates that researchers are still unclear about the relationship between learner’ strategy use and writing performance. Some L2 writing studies (e.g., Abdullah, 2009; Chen, 2011; Chien, 2012; Yang & Plakans, 2012) concluded that learners’ selection and combination of strategies were associated with their performance, but few studies to date found that language learners’ overall strategy use was statistically correlated with their writing performance.

Findings of several recent research (Chen, 2011; Chien, 2012; Roca de Larios, Manchón, Murphy, & Marin, 2008; Yang & Plakans, 2012) revealed conflicting results concerning the relationship between learners’ use of some strategies and writing performance. Chen (2011) examined 132 Chinese EFL college students’ English writing strategies in terms of three aspects: pre-writing strategies, while-writing strategies, and

revising strategies. The results indicated that some *revising* strategies (e.g., *repeating*) had positive correlation with writing scores. Yang and Plakans (2012) investigated English writing strategies of 161 ESL college students from several countries. Different from Chen's finding that learners' use of the strategy *repeating* was positively correlated with their writing scores, Yang and Plakans found that a similar strategy *copying* used by writers had a direct and negative impact on their writing performance.

In 2008, Roca de Larios, Manchón, Murphy, and Marin examined English writing processes of seven Spanish EFL learners when they did an argumentative writing task. The results indicated that advanced EFL writers used more the strategy *planning* compared with non-advanced EFL writers, and that advanced writers did few *word-level revisions* but *discourse-level revisions*. In contrast, Chien's study (2012) with 40 Chinese EFL writers showed that high-achieving writers spent less time on *planning* than low-achievers and high-achievers did *word-level revisions* as much as *discourse-level revisions*.

Therefore, writing strategies, like what Song (2005) observed about language learner strategies, may have different effects (i.e., facilitative effect, inhibitive effect, or no effect at all) for L2 writers with different characteristics in different language use settings. The interpretation of the research results about the relationship between learners' strategy use and writing performance should be cautious. It is important to be aware that no strategies can be proved as consistent "good" or "bad" (Macaro, 2009). Macaro (2009) criticized some researchers' proposal of consistent "bad" strategies. For example, Vandergrift (2003) studied L2 learners' listening comprehension and argued that *translating into L1* was an overall bad strategy in L2 learning and use. However, as I stated before, *the use of*

L1 in L2 writing studies (e.g., Cohen & Brooks-Carson, 2001; Manchón, Roca de Larios, & Murphy, 2007; Qi, 1998) and also in a L2 reading study (Kern, 1994) has been defined as a facilitative strategy.

Instead of defining general “good” or “bad” strategies, researchers have turned to the notion of *orchestration* of strategies. “The orchestration of clusters of strategies, that is, choosing and evaluating from a range of strategies, is more effective than linear deployment of several strategies” (Macaro, 2006, p. 328). In other words, to achieve success in language tasks, learners should create and evaluate their own strategy repertoires, learning how to select available strategies in appropriate combinations and at right moments.

Therefore, the current study not only investigated the relationship between individual strategies and writing performance but also the relationship between strategy clusters and writing performance as well as the relationships among strategy categories. The findings of my study help to shed the light on how learners use and evaluate small strategies against a specific academic writing task.

2.5 Using Think-aloud Protocols and Retrospective Interviews

During the last three decades, L2 writing experts have employed different methodological tools to explore learners’ mental processes and strategic behaviours. Mackey and Gass (2005) and Cohen (1998) have summarized several ways enabling researchers’ access to task-based language learner strategies. 1) Learners provide verbal (i.e., interview) or written reports (i.e., questionnaire) of the strategies they use in general, or which strategies they think they would use when approach a particular task. 2) Learners provide concurrent verbal reports (i.e., think-aloud technique) as they are

completing a task. 3) Learners provide written (i.e., questionnaire, dialogue journals, and diary) or verbal (i.e., retrospective interview, stimulated recall) reflections on their performance after a task. 4) Researchers observe learners when they are engaging in language tasks. 5) Researchers use computer technologies to track learners' use of function resources on computer. Among these techniques, no one is better than others and researchers usually combine some of them to elicit language learner strategies.

In the present study, concurrent think-aloud protocols and post-task retrospective interviews were used. Concurrent think-aloud technique asked participants to verbalize what was going through their minds while they were attempting writing tasks. Retrospective interviews happened immediately after participants performed a task. By answering interview questions, participants reflected on their performance and the steps they had gone through to approach the task.

In actual task situations, learners' self-reported data include rich strategy information. "Verbal reports (think-aloud techniques and task-based retrospectives) effectively yield insights into skill-specific or task-specific strategy use" (Macaro, 2006, p. 321). According to Perl (1979), the narrative description of writers or the direct observation by researchers "provides no way of ascertaining the frequency, relative importance, and place of each behaviour within an individual's composing process" (p. 318). Although self-reported data by writers offer some insights into the question of what strategic operations are useful and manageable for language learners, concurrent and retrospective verbal reports have received criticisms in terms of their reactivity and veridicality.

For concurrent verbal reports, its reactivity is under question because researchers do not know whether transferring ideas into words while attempting a task is reactive.

Acting as an additional task, concurrent verbal reports may cause cognitive overloading on the participants, altering their cognitive processes instead of offering a true reflection of their thoughts. By comparing the concurrent think-aloud protocol and the silent control, L2 reading studies (Leow & Morgan-Short, 2004; Bowles & Leow, 2005) provided the evidence that there was a disruption in learners' reading tasks caused by the verbal thinking. McInnis (2009) stated the same concern that the think-aloud might exert pressure on the writers, who had difficulty in expressing in either L1 or L2 while completing a challenging task.

For retrospective reports, its veridicality is questioned. Participants report their language performance and cognitive processes some time after task, so there is a potential that post-task reports "may not accurately reflect participants' thought process because they simply may not recall what they were thinking as they completed the given task" (Bowles, 2010, p. 14). To minimize the time effect, the retrospection can be done with a short delay between the language task and the retrospective report. As such, the retrospective post-task interview in my study was carried out immediately after each individual participant performed a writing task. The advantage of immediate retrospective interviews is that during the interview sessions, writers still have fresh memories of their feelings and decision-making processes in composing.

In addition to reactivity and veridicality, another concern is the reporting language. Should learners provide their verbal reports in the target language of the task or in their first language? Oxford (2011) pointed out that "it can sometimes be confusing for the learner to think aloud in the L1 while doing the task in the L2" (p. 151). In the present study, all participants were told that they could report in either their L1 or their L2 during

think-aloud writing sessions, and that they could report in the language they would feel comfortable with. For the same reason, I conducted post-task interviews with each individual participant in Mandarin, our shared L1.

Since the accuracy of learners' self-reported data is always a concern, some researchers (e.g., Huang, forthcoming; McInnis, 2009; Mu & Carrington, 2007) analyzed verbal reported data as well as non-verbal data provided by participants to get a fuller picture of language learner strategies. In L2 writing studies, non-verbal data could be the written samples produced by learners and the videotapes from writing sessions. Therefore, in addition to coding verbal reported data, I coded all the video clips from think-aloud writing sessions to capture the non-reported strategic behaviours of participants. The coding tasks of verbal reported data and non-verbal data were based on a same coding scheme.

2.6 Research Questions

The present study involved 35 Chinese ESL writers who were at high-intermediate and advanced proficiency levels. The research purposes were to identify, classify, and analyze the L1 and L2 composing strategies reported by Chinese ESL graduate student writers as they were performing a L1 (Chinese) and a L2 (English) argumentative writing tasks, and to examine the relationship between L1/L2 writing performance and L1/L2 writing strategies.

Specifically, this study explored the answers to the following five questions:

1. What are the identified strategies by Chinese ESL learners in completing a L1 (Chinese) writing task?

2. What are the identified strategies by Chinese ESL learners in completing a L2 (English) writing task?
3. What is the relationship between the identified L1 strategies and L2 strategies?
Are there any similarities or differences?
4. What is the relationship between L1 strategy use and L1 writing performance?
5. What is the relationship between L2 strategy use and L2 writing performance?

Chapter 3

Method

3.1 Participants

The present study was designed to investigate the academic writing strategies used by Chinese ESL graduate students in North America. Responded to my email invitation (see Appendix B), 35 volunteers from a Canadian university agreed to participate in the main study.

3.1.1 Participants' characteristics

All 35 participants met the following criteria: a) they spoke Mandarin as their L1; b) they were international ESL (English-as-a-second-language) students; c) they were full-time graduate students at a North American university; d) they were high-intermediate and advanced ESL writers, who had the academic writing ability to perform the argumentative writing tasks in the present study. Participants had fulfilled the English language requirement of the university, where they were pursuing their graduate studies. In the present study, participants were asked to report their English language test scores used for their graduate admissions to the university. Among the 35 participants, 15 reported IELTS writing scores, ranging from 6.0 to 7.5 with an average of 6.5, and 20 reported TOEFL writing scores, ranging from 20 to 28 with an average of 24.6.¹

During data collection sessions, participants filled out a background questionnaire (see Appendix C), which asked about their basic personal information, education background,

¹ The self-reported L2 scores were used to corroborate with the L2 scores participants achieved in the present study.

language learning background, and academic writing experiences. As Table 1 indicated, the age of participants ranged from 20 to 37 years old, with an average of 25. The average length of stay in an English-speaking country was 10 months. As for gender, there were 16 males and 19 females. These 35 graduate students (8 PhD students and 27 Master students) came from different disciplines: Engineering and Sciences (n = 16), Education and Social Science (n = 13), and Humanities (n = 6).

Table 1
Participants' Characteristics

Age in years	Mean	25
	Range	20 – 37
Length of residence	Mean	10 months
	Range	1 month – 60 months ²
Gender	Male	N = 16
	Female	N = 19
Academic background	Education (10); Mechanical engineering (6); Electrical engineering (5); Applied linguistics (3); Linguistics (3); Economics (2); Statistics (2); Climate science (1); Computer science (1); Physics (1); Psychology (1)	

Note. N = 35

3.1.2 Participants' experiences with academic writing

The last section in the background questionnaire (see Appendix C) was about academic writing background, in which participants described their L1 and L2 writing experiences. While answering the question “Have you received any English academic writing instructions,” 17 participants answered *yes* and 18 participants answered *no*. Among the participants who gave the positive answer, seven reported that they had taken English

² There was only one participant, whose length of residence was 60 months. His L2 score in the study was 1.5 (group average = 3.5). The mean length of residence excluding this participant was 8 months.

writing courses from language training agencies in China; seven reported that they had taken English writing courses at their undergraduate universities in China; and three reported that they were participating in current university's writing workshops.

Regarding the question "How many pieces of academic writing in English do you complete each term," participants' answers varied from one piece to ten pieces and the average number was four pieces. This questionnaire also asked participants to describe the general steps and processes they would go through in performing an English argumentative writing task. A detailed analysis of participants' answers is incorporated in the Results chapter.

3.2 Instruments

3.2.1 L1 and L2 writing tasks

The L1 (Chinese) and L2 (English) writing task topics (see Table 2) used in the main study were randomly selected from the writing topic pool of the Graduate Record Examination (GRE) General Test³. The writing tasks in the GRE General Test are an appropriate tool to examine ESL graduate students' academic writing performance for two reasons. First, the GRE General Test is a widely used assessment tool for the admission of graduate students in North America. The test has been developed and undergone ongoing validation by the Educational Testing Service (ETS). Second, the writing tasks in the GRE General Test are argumentative writing tasks, which is a necessary academic writing genre at North American universities. No matter what their majors are, graduate students are always asked to support, argue, or evaluate certain

³ The writing topic pool in the GRE General Test is published on the GRE website: http://www.ets.org/gre/general/prepare/sample_questions/analytical/issues/.

topics or events in academic writings. For ESL graduate students in North America, the challenges in argumentative writings are not only related to their writing skills of developing strong arguments, but also associated with the fact that there are cultural and linguistic gaps between their L1 and L2. Therefore, the present study used the writing task from the GRE General Test to investigate Chinese ESL graduate students' academic writing performance.

Table 2
L1 and L2 Argumentative Writing Tasks

Language	Writing Task
L1	<p>请用相关的理由和例子来支持你对下列观点的看法，请用汉语书写。</p> <p>“大部分的人无论是在物质上还是精神上都生活在一个比较局限的圈子当中。除非有一个严重的问题或是危机出现在他们面前，否则他们只会利用有限的资源来生活。”</p>
L2	<p>Present your perspective on the issue below, using relevant reasons and/or examples to support your views and please write in English.</p> <p>"The most effective way to understand contemporary culture is to analyze the trends of its youth."</p>

I translated the L1 writing task topic from English to Chinese. Another Applied Linguistics Master's student, who was a native speaker of Mandarin and a fluent speaker of English, verified the translation. The original L1 task question in English was that "Most people live, whether physically or morally, in a very restricted circle. They make use of a very limited portion of the resources available to them until they face a great problem or crisis." During the L1 writing task, only the Chinese version of the task requirement and the writing topic was presented to the participants.

3.2.2 Post-task interviews

Immediately after each writing task, I had a retrospective interview with each individual participant. I prepared three general questions (see Appendix D) for the interview. Based on their responses, I asked follow-up questions to understand their thoughts and reported strategic behaviours at a deep level. The interview was designed to help individual participants to reflect on what they thought and what they did during their performance in each writing task.

3.3 Procedures

3.3.1 Participant recruitment

In August 2011, I started to recruit participants for the present study through email invitations (see Appendix B). I sent the email to department secretaries, requesting them to distribute the invitation to their graduate students. In the email, I included the procedures of my study and requested the interested international students who spoke Mandarin as L1 and English as L2 to contact me. After receiving replies from the interested Chinese ESL graduate students, I sent them the participant consent form (see Appendix E) and asked them to look through it carefully. When agreed to participate in my study, each participant scheduled the research date and time with me.

3.3.2 Pilot study

Before the main study, I conducted one pilot study with two participants in September 2011. The participants were two Chinese ESL graduate students from two different faculties: Education and Economics.

The pilot study was completed as a full-length research with the same procedures of the main study. The pilot study was designed to revise the background questionnaire, to check the procedures employed in the main study, and to check the video and voice recording equipment. In the pilot study, each participant individually completed a background questionnaire, a think-aloud training practice, a L1 (Chinese) and a L2 (English) writing tasks, and two post-task interviews. The data from the pilot study were not included in the data analysis of the main study. Based on the results of the pilot study, I made several changes to the procedures of the main study:

1. I modified the way of how participants did writing tasks, from handwriting to writing on a laptop computer. The first pilot participant wrote his L1 task on paper. During the post-task interview, he reported that he would feel more comfortable if he could write with a computer. The second participant also showed her preference for writing on a laptop computer. Since the writing tasks in the GRE General Test are completed in a computer setting and most graduate courses at North American universities ask students to do their writing assignment on computer, all 35 participants in the main study performed the L1 and L2 academic writing tasks with Microsoft Word on a same laptop computer.
2. I changed the time length of each writing task from one hour to 50 minutes. The writing task in the GRE General Test, from whose topic pool I randomly selected the L1 and L2 writing tasks, was a 30-minute writing task. Note that the L1 and L2 writing tasks in the present study requested each participant to verbalize his/her thoughts as much as possible during composing. The writing task as well as the think-aloud procedure might take more than 30 minutes for participants.

Taking this factor into account, I originally assigned one hour to each writing task. However, pilot study participants reported that it was not necessary to give them one hour to accomplish the task. Therefore, I decided to shorten the time length of each writing task from one hour to 50 minutes.

3. I modified some questions in the questionnaire to make sure that the participants in the main study would understand them. For example, one question originally was “Is the argumentative writing task difficult for you? What is the most challenging part?” Both the pilot study participants asked me whether they should describe their experiences of English argumentative writing or their experiences of Chinese argumentative writing. For this reason, I split this question into two questions (see Questions 15 and 16 in Appendix C) asking participants’ Chinese and English writing experiences.

3.3.3 Main study

From September 2011 to December 2011, I conducted the main study with 36 volunteer participants⁴. The data collection of the main study was divided into two sessions (see Table 3). The two data collection sessions were conducted on the same day. The total participation time for each participant was about two hours and 35 minutes. Session one lasted about one hour and 25 minutes. Session two lasted about one hour. There was a ten-minute break between the two data collection sessions. Since all

⁴ One of the participants barely did the think-aloud during composing. He reported that it was very difficult for him to write and at the same time to report his thoughts. For this reason, I excluded his data from the data analysis.

participants were requested to verbalize their thoughts as much as possible during L1 and L2 writing tasks, each participant individually completed the two data collection sessions with me in a research lab on campus.

Table 3
Two Data Collection Sessions

Session	Participants with odd numbers	Participants with even numbers
	<i>N</i> = 17	<i>N</i> = 18
One (85 minutes)	<ul style="list-style-type: none"> • Individual consent (5 min.) • Background questionnaire (10 min.) • Think-aloud training (10 min.) • Chinese writing task + Think-aloud (50 min.) • Retrospective interview (10 min.) 	<ul style="list-style-type: none"> • Individual consent (5 min.) • Background questionnaire (10 min.) • Think-aloud training (10 min.) • English writing task + Think-aloud (50 min.) • Retrospective interview (10 min.)
Two (60 minutes)	<ul style="list-style-type: none"> • English writing task + Think-aloud (50 min.) • Retrospective interview (10 min.) 	<ul style="list-style-type: none"> • Chinese writing task + Think-aloud (50 min.) • Retrospective interview (10 min.)

Session one. Prior to the data collection sessions, all participants had read through the participant consent letter, so that they knew the procedures of the main study and understood that they could withdraw at anytime if they wanted. At the beginning of session one, each participant provided his/her informed consent to participate in the study.

Then, individual participants filled out a background questionnaire (see Appendix C). When each participant answered the questionnaire, he/she was randomly assigned with a number (e.g., P1, P2), which was used in the data analysis as well as in this thesis to protect participants' confidentiality.

Next, each participant received a training to familiarize with concurrent verbal reports. I requested each participant to verbalize any thoughts coming to their minds while performing writing tasks. Within the 10-minute training, each individual participant tried to think aloud as much as possible, when he/she dealt with a simple writing task of introducing one of his/her favourite cities and giving reasons. Participants were told that they could report in either English or Mandarin.

After the familiarization run, 17 participants assigned with odd numbers worked on the L1 (Chinese) writing task while composing aloud; 18 participants assigned with even numbers worked on the L2 (English) think-aloud writing task instead. Same as the writing tasks in the GRE General Test, the L1/L2 writing task in the present study had no requirement as for the number of words but only the time limitation. Participants were required to complete the L1/L2 writing task within 50 minutes. During the writing task, I sat behind each participant to remind him/her to keep verbal thinking during composing. All individual participants did their writing tasks with Microsoft Word on a same laptop computer. The entire process, in which each participant developed writing samples as well as verbalized thoughts, was videotaped. The video-recoding focus was the computer screen, because participants might not be able to verbally report some behaviours (e.g., deleting words, inserting a new paragraph, or rephrasing) indicating how they made linguistic or rhetorical decisions during composing. At the same time, a voice recorder was put beside each participant. Each participant was provided with a pen and a piece of paper in case he/she would like to make notes.

Immediately after each L1/L2 writing task, I carried out a retrospective interview with each participant. The sample questions are presented in Appendix D. Participants were

reminded that they should report what they had done during composing instead of what they thought they should have done/do during the task. All interview sessions were audio-recorded.

Session two. Participants had a 10-minute rest between session one and session two. In this session, each participant first performed the L1/L2 writing task. This time, the odd-numbered participants worked on the L2 writing task, and the even-numbered participants worked on the L1 writing task. This rotation arrangement of the L1 writing task and the L2 writing task was to minimize the test-wise effect caused by the first task on participants. Immediately after the writing task, there was also a retrospective interview between each individual participant and me.

3.4 Data Coding

3.4.1 Transcribing verbal reported data

There were 70 clips of concurrent think-aloud data from L1 and L2 writing task sessions and 70 clips of post-task interview data. I fully transcribed the 70 clips from interview sessions. As for the concurrent reported data, I transcribed them partly. The parts I did not transcribe were three kinds of report segments indicating the participant was *reading task question*, *writing down what he/she was saying*, or *reading what he/she had written*. Instead, I marked [reading task question], [writing down what he/she is saying], and [reading what he/she has written] in the transcripts when I found these three reported behaviours appeared in clips.

3.4.2 Coding scheme

The present study employed a list of language learner strategies (see Appendix A) as the basis to identify and classify the strategies elicited from the data of the main study. Since this preliminary list was generated based on the findings of several studies (Huang, 2010, forthcoming; Mu & Carrington, 2007; Oxford, 1990; Swain et al., 2009) with different focuses (i.e., language use, language learning, and language testing), I modified this list according to the coding decisions of the present study. Finally, the present study has developed a new coding scheme (see Appendix F), which attempts to describe the strategic behaviours of Chinese ESL graduate students while performing Chinese and English argumentative writing tasks.

The coding scheme in Appendix F has seven strategy categories: *approach*, *rhetorical*, *communication*, *cognitive*, *metacognitive*, *affective*, and *social* categories. Each category is further subcategorized into individual strategies. For instance, the approach category consists of four individual strategies: *developing reasons*, *generating ideas*, *identifying task requirements*, and *selecting topics*, which are used to approach a task. In the coding scheme in Appendix F, the definition and one example of each individual strategy are also provided.

3.4.3 Data coding sessions

An external coder and I independently coded 100% of the transcripts, which were the verbal reported data from think-aloud sessions and interview sessions. The second coder was also a Master's student in Applied Linguistics, and she spoke Mandarin as her first language.

There were seven coding sessions from January 2012 to March 2012. In each session, we independently coded the transcripts of 5 participants; then, we met together to discuss the disagreements in our coding results until inter-coder agreements were achieved and we modified the working coding scheme according to our coding decisions. The total number of coding counts was 2624. Among the total counts number, the disagreement count number was 144. The simple inter-coder agreement percentage (the agreement counts number 2480 divided the total counts number 2624) was 94.51%.

During the coding sessions, most disagreements occurred in the following situations:

1. A participant reported a same strategic behaviour more than once in a writing task and the following post-task interview. To avoid the double coding of a same individual strategy, the two coders had to decide which one should be coded. For example:

人生观，把词儿给忘了。哎呀，好吧，*life and value...thought* 吧。(P27, L2)

(Translation: [The outlook on life], I forget the phrase. Okay, then, *life and value...thought*.)

或者说是想不起来这个词，我就拿其他的词去解释它。(P27, L2 interview)

(Translation: If I cannot think of a word, I would use other words to explain it.)

The above two report segments were similar enough to be regarded as one same strategic action of *approximating* in the L2 writing task. The strategy *approximating* involves using an alternative term, which expresses the meaning of the target lexical item as closely as possible. Instead of coding twice, the two coders only coded the second segment as the strategy *approximating*.

2. An individual strategy did not exist in the working coding scheme but was reported by a participant. The two coders had to discuss the name and definition of this strategic action and added a new individual strategy into the proper category according to its purpose. For example:

开头可以直接套模版。(P20, L2)

(Translation: I can use a model while writing the beginning part.)

这个是托福题目，还是 GRE 题目？GRE 题目.....那就只能按 GRE 的套路来写了。GRE 的套路是什么？首先是同意还是不同意。(P31, L2)

(Translation: Is this a TOEFL writing question or a GRE writing question? It is a GRE test question. Then, I have to use the model for GRE test. What is the model? First, I have to say whether I agree or disagree [with the statement].)

These two segments were coded as the strategy of *using models or formats*, which was not included in the preliminary strategy list (see Appendix A). Based on the purpose and function of this strategic behaviour, the two coders added this new individual strategy into the *rhetorical* strategy category.

3. One reported segment sometimes involved two strategic actions. If the two coders had different coding decisions about one segment, they had to together examine the segment carefully in case missing any strategic behaviours. For example:

我现在把文章读一遍，这样可以帮我理清一下思绪。 (P8, L2)

Overviewing

Developing reasons

(Translation: Now I'm overviewing the whole article, because this can help me organize my thoughts.)

In this utterance, the participant reported two kinds of strategic actions. The first individual strategy was *overviewing* in that the participant overviewed a text after finishing it; the second individual strategy was *developing reasons* in that the participant provided reasons for what he/she was doing or what he/she was going to do.

4. As for the individual strategy *Editing*, the two coders further expanded it into eight strategies based on the findings in Wong's study (2005). The purpose was to capture different editing strategies in terms of their various purposes. The eight elaborated strategies were *editing-addition*, *editing-deletion*, *editing-format*, *editing-grammaticality*, *editing-punctuation*, *editing-relocating*, *editing-spelling errors*, and *editing-substitution*. Every time when a participant reported an action of editing the text without changing the meaning, the two coders would decide which editing strategy it was. Since the elaboration of the individual strategy *editing* was only to describe how participants used this strategy for different purposes, I combined all the counts of these eight editing strategies as the counts of one individual strategy *editing* when I did statistical tests for quantitative data analysis.

After the seven coding sessions dealing with all verbally reported data, I started a task of coding non-verbal data. I viewed all the 70 video clips of the computer screen recording from L1 and L2 think-aloud writing sessions. The purpose was to capture participants' strategic behaviours, which were not verbally reported by them. One week after the first coding task, I checked 30% of the 70 video clips again. The intra-coder

reliability was 87.24%. For statistical analysis, I combined verbal data coding results and non-verbal data coding results together.

3.5 Data Analysis

3.5.1 Coded data

With the coding sheets, I entered the counts of individual strategies into an excel file. I summed the counts for each strategy category (seven categories), for each participant (35 participants), and for each writing task (L1 and L2). The frequencies of identified individual L1/L2 strategies, the frequencies of each L1/L2 strategy category, and the frequencies of total L1/L2 strategies were used as the data in the correlation tests between L1 strategy use and L2 strategy use, in the correlation tests between writing strategies and writing scores, and in the two-sample Kolmogorov-Smirnov test analyzing the L2 strategy use across two score-levels. Before running any statistical tests, I did Shapiro-Wilk tests on the frequencies of individual strategies identified in the L1 and L2 writing tasks. The results (see Table 4) indicated that the frequencies data were not normally distributed. Therefore, nonparametric statistics were employed to answer the five research questions.

Table 4
Tests of Normality for Frequencies of Individual Strategies

Task	Shapiro-Wilk		
	Statistic	<i>df</i>	<i>Sig.</i>
L1 Writing Task	.808	35	.000
L2 Writing Task	.821	35	.000

Note. $N = 35$

3.5.2 Written sample data

For the L1 written data, I sent the 35 Chinese writing samples produced in the main study to a professor of Chinese Language and Literature at Zhengzhou University in China. She rated all the compositions according to a 10-point holistic scale. Half points were acceptable. One week after the first grading task, the same rater completed the second rating task with 13 randomly selected Chinese writing samples. The intra-rater reliability was checked by a Spearman's *rho* test (see Table 5) and the coefficient was .844.

As for the data of L2 writing samples, I recruited two raters, who were experienced writing tutors in a university writing centre. They individually graded all the English compositions produced by 35 participants with a six-point scale⁵ according to the criteria (see Appendix G) created by the ETS for the GRE general test. According to the criteria, half points were allowed. For each L2 writing sample, when the variance between the two scores given by the raters was 0.5, the mean of the two scores was regarded as the final grade of that written text. When the grade difference was more than 0.5, the two raters had to discuss their disagreement until a 100% agreement achieved on the final score. As shown in Table 6, the inter-rater reliability coefficient was .841.

Table 5
Intra-rater Reliability for L1 Writing Scores

		Second Rating	
		Correlation Coefficient	.844 ^{**}
Spearman's <i>rho</i>	First Rating	<i>Sig.</i> (2-tailed)	.000
		<i>N</i>	13

Note. ^{**} Correlation is significant at $p < .01$ (2-tailed).

⁵ The six-point scale and criteria for scoring the written samples are published on the GRE website: <http://www.ets.org/gre/institutions/scores/interpret/issue/>.

Table 6
Inter-rater Reliability for L2 Writing Scores

		Rater K
Spearman's <i>rho</i>		Correlation Coefficient
	Rater S	<i>Sig.</i> (2-tailed)
		<i>N</i>
		.841**
		.000
		35

Note. ** Correlation is significant at $p < .01$ (2-tailed).

Based on the English writing scores participants achieved in the present study, I divided them into two score-level groups (Level 1 Group vs. Level 2 Group). The participants whose L2 scores fell into the scale form 0.25 to 3.00 were regarded as Level 1 Group; the participants whose L2 writing scores fell into the scale from 3.25 to 6.00 were regarded as Level 2 Group. Table 7 presented the information of participants' L2 writing scores by two score-level groups.

Table 7
Descriptive Statistics for L2 Writing Scores by Two Score-level Groups

	<i>N</i>	Mean	SD	Min	Max
Level 1 Group	14	2.66	.52	1.50	3.00
Level 2 Group	21	3.56	.33	3.25	4.50

3.5.3 Statistical data analysis

To answer the five research questions, I conducted nonparametric statistical tests by using IBM SPSS (Statistical Package for the Social Sciences) Version 20. The frequencies of individual strategies and the values of writing scores were used as the data in those tests.

Research Question 1 and Research Question 2 asked about the identified strategies used by participants in the L1 and L2 writing tasks. Using the frequencies of individual

strategies as the data, I obtained the descriptive statistics from SPSS for participants' L1 and L2 strategy use by seven strategy categories. At the same time, I used the Spearman's *rho* tests for checking the correlations among the categories of L1 writing strategies as well as the correlations among the categories of L2 writing strategies.

To address Research Question 3 about the relationship between the identified L1 strategies and the identified L2 strategies, I used the Spearman's *rho* coefficient to check the correlation between the frequencies of total L1 and L2 strategies as well as the correlation between the frequencies of L1 and L2 strategies by seven strategy categories.

To address Research Questions 4 and 5 concerning the relationship between L1/L2 strategy use and L1/L2 writing performance, I used the Spearman's *rho* coefficient to examine the correlations between the frequencies of L1/L2 strategies and the values of L1/L2 writing scores. In addition, I did a two-sample Kolmogorov-Smirnov test to analyze the differences in the L2 strategy use across two participant groups (Level 1 Group vs. Level 2 Group). The two score-level groups were independent variables and the identified individual strategies were dependent variable.

While conducting the statistical tests, I also calculated the effect size for the test results that were at the significant level. Effect size, a descriptive statistic, measures "the magnitude of the impact of the independent variable on the dependent variable" (Kline, 2004, p. 97). Independent from the research sample size, the effect size gradually becomes an important parameter implying the size of differences between research groups. According to Larson-Hall (2010), the effect size for correlations could be the correlation coefficient r itself. The guidelines (Cohen, 1988; Larson-Hall, 2010) of interpreting the effect size were: $r = .10$ (small effect size), $r = .30$ (medium effect size),

and $r = .50$ (large effect size). Meanwhile, Larson-Hall (2011) proposed that the effect size for correlations could also be calculated as the squared correlation coefficient r^2 , which indicated the percentage of the variance in one variable that another one explained. Consistent with Cohen's guidelines (1988), Larson-Hall (2010) suggested that the guidelines of interpreting the effect size were: $r^2 = .01$ (small effect size), $r^2 = .09$ (medium effect size), and $r^2 = .25$ (large effect size).

3.5.4 Qualitative data analysis

To understand participants' perception of their writing processes and strategy use, I examined 35 participants' answers to the last question in the background questionnaire "Please describe the general steps or approaches you might take when you compose an English argumentative writing." Meanwhile, I examined the transcripts of interview data. First, while reading through the questionnaire answers and the transcripts, I took notes to record the key words appearing in participants' reported data. Second, I summarized the steps and the process most participants thought they might take in English academic writing tasks. Third, I based on the notes, analyzed participants' perceptions and feelings after they performed the L1/L2 writing task in the present study. The qualitative analysis of the reported data is presented in the Results chapter in terms of three aspects: pre-task reports on the academic writing processes; post-task reflections on the strategy use; and post-task comparison between L1 writing and L2 writing.

Chapter 4

Results

4.1 Research Question 1: Identified L1 Writing Strategies

1. *What are the identified strategies by Chinese ESL learners in completing a L1 (Chinese) writing task?*

Coding the think-aloud data and the interview data from 35 participants, I have identified 72 individual strategies with the total frequency of 1169 in the L1 writing task. All individual strategies have been classified into seven categories (approach, rhetorical, communication, cognitive, metacognitive, affective, and social) based on their purposes.

Table 8
Identified L1 Writing Strategies by Category

	App	Rhet	Com	Cog	Meta	Aff	Social
Median	6.00	4.00	1.00	7.00	8.00	1.00	1.00
Min	1	0	0	2	2	0	0
Max	11	13	16	42	21	5	6
Range	10	13	16	40	19	5	6
Frequency	192	166	76	305	327	45	58
Percentage	16.42%	14.20%	6.50%	26.09%	27.97%	3.85%	4.96%

Note. $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

Table 8 presented the information of the identified L1 strategies by category. The *Median* refers to the value in the midpoint of an ordered set of values (the number of times individual strategies have been elicited from the data). *Min* and *Max* mean the minimum number and the maximum number of identified strategies. *Range* is the maximum number of identified strategies minus the minimum number. *Frequency* means the number of times individual strategies have been identified. *Percentage* is the

percentage of each individual strategy in relation to the total number of all elicited individual strategies. From the highest percentage to the lowest percentage of the identified strategies by category, the categories were metacognitive (27.97%), cognitive (26.09%), approach (16.42%), rhetorical (14.20%), communication (6.50%), social (4.96%), and affective (3.85%).

Among the 72 individual strategies elicited from the L1 writing task, the 10 most frequently identified strategies were:

1. Generating ideas: 9.67% (Approach)
2. Evaluating language production: 6.07% (Metacognitive)
3. Providing examples: 5.99% (Rhetorical)
4. Questioning the researcher: 4.96% (Social)
5. Identifying task requirements: 4.70% (Approach)
6. Organizing thoughts: 4.45% (Cognitive)
7. Attending to task requirements: 3.93% (Cognitive)
8. Evaluating writing task: 3.85% (Metacognitive)
9. Rereading: 3.59% (Cognitive)
10. Planning: 3.51% (Metacognitive)

The top 10 strategies above have already presented 50.72% of all the identified L1 writing strategies. In the list, three were cognitive strategies, three were metacognitive strategies, two were approach strategies, one was a rhetorical strategy, and one was a social strategy. None fell into the communication category and the affective category. Note that there was only one social strategy (i.e., questioning the researcher) was

identified in the present study, but its percentage was 4.96% as the fourth most frequently used strategy by L1 writing participants.

Examining the 72 individual strategies by category, I found that 26 of them were cognitive strategies, 16 were metacognitive strategies, 13 were rhetorical strategies, seven were communication strategies, five were affective strategies, four were approach strategies, only one was a social strategy. In the approach category, the most frequently identified strategy was *generating ideas* (58.85%). In the rhetorical category, the most frequently identified strategy was *providing examples* (42.17%). In the communication category, the most frequently identified strategy was *Linking to prior experiences/knowledge* (44.74%). In the cognitive category, the most frequently identified strategy was *organizing thoughts* (17.05%). In the metacognitive category, the most frequently identified strategy was *evaluating language production* (21.71%). In the affective category, the most frequently identified strategy was *justifying performance* (42.22%). In the social category, the only strategy was *questioning the researcher*.

Table 9
Correlations Among Seven Strategy Categories in L1 Writing

	App	Rhet	Com	Cog	Meta	Aff	Social
App	1.000						
Rhet	.231	1.000					
Com	.440**	-.055	1.000				
Cog	.596**	.265	.166	1.000			
Meta	.440**	-.011	.474**	.481**	1.000		
Aff	.337*	.140	.228	.130	.240	1.000	
Social	-.082	-.015	-.087	.111	.059	.061	1.000

Note. Spearman's ρ , $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

* Correlation is significant at $p < .05$ (2-tailed). ** Correlation is significant at $p < .01$ (2-tailed).

To understand the correlations among seven strategy categories, I conducted the Spearman's *rho* tests. The results in Table 9 showed that there were 6 correlation coefficients in bold at the significant level and all the significant relationships were positive.

Approach strategies were positively correlated with communication strategies, cognitive strategies, and affective strategies. Metacognitive strategies were positively correlated with approach strategies, communication strategies, and cognitive strategies. Generally, participants, who reported they used more cognitive strategies, had a tendency to use more communication, cognitive, and affective strategies, and vice versa; participants, who reported they used more metacognitive strategies, had a tendency to use more approach, communication, and cognitive strategies, and vice versa.

Table 10 indicated the effect size calculated for each significant coefficient between two strategy categories in the L1 writing. For the correlation between L1 approach strategy category and L1 cognitive strategy category, a large effect size in bold suggested that it was highly possible that the use of approach strategies was positively correlated with the use of cognitive strategies in the L1 writing task. Other significant relationships had the medium effect size.

Table 10
Effect Size for Significant Correlations Among Categories in L1 Writing

	App vs. Com	App vs. Cog	App vs. Meta	App vs. Aff	Meta vs. Com	Meta vs. Cog
r^a	.440	.596	.440	.337	.474	.481
$(r^2)^b$	.194	.355	.194	.113	.224	.231

Note. $N = 35$. App = Approach; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

^a r = The correlation coefficient at the significant level.

^b r^2 = The squared correlation coefficient.

4.2 Research Question 2: Identified L2 Writing Strategies

2. *What are the identified strategies by Chinese ESL learners in completing a L2 (English) writing task?*

A total of 71 individual strategies were elicited from L2 think-aloud writing sessions and L2 interview sessions. Same as the classification of the identified L1 strategies, the identified L2 strategies were also clustered into seven categories: approach, rhetorical, communication, cognitive, metacognitive, affective, and social categories.

Table 11 presented the information of the elicited L2 writing strategies by seven categories. The category with the highest percentage was the cognitive category (39.07%), followed by the metacognitive category (24.00%), the approach category (13.87%), the rhetorical category (11.07%), the communication category (5.20%), the social category (3.53%), and the affective category (3.27%).

Table 11
Identified L2 Writing Strategies by Category

	App	Rhet	Com	Cog	Meta	Aff	Social
Median	6.00	4.00	2.00	12.00	9.00	1.00	1.00
Min	1	2	0	3	3	0	0
Max	17	11	13	69	27	10	8
Range	16	9	13	66	24	10	8
Frequency	208	166	78	586	360	49	53
Percentage	13.87%	11.07%	5.20%	39.07%	24.00%	3.27%	3.53%

Note. $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

Among the 71 individual strategies reported by participants in the L2 writing task, the 10 most frequently identified strategies were:

1. Generating ideas: 8.76% (Approach)
2. Using L1 to organize thoughts: 6.67% (Cognitive)

3. Evaluating language production: 5.80% (Metacognitive)
4. Providing examples: 4.60% (Rhetorical)
5. Coding-switching: 4.47% (Cognitive)
6. Rereading: 4.00% (Cognitive)
7. Identifying task requirements: 3.67% (Approach)
8. Translating from L2 to L1: 3.60% (Cognitive)
9. Questioning the researcher: 3.53% (Social)
10. Recalling vocabulary: 3.27% (Cognitive)

In relation to the total frequencies of L1 individual strategies, the percentage of the 10 most frequently identified strategies was 48.37%. In this list, five were cognitive strategies; two were approach strategies; one was a metacognitive strategy, one was a rhetorical strategy, and one was a social strategy. There were no communication or affective strategies in the list.

Among the 71 individual strategies elicited from the L2 writing task, 16 were metacognitive strategies, 11 were rhetorical strategies, eight were communication strategies, four were affective strategies, three were approach strategies, one was a social strategy. In the approach category, the most frequently identified strategy was *generating ideas* (62.5%). In the rhetorical category, the most frequently identified strategy was *providing examples* (41.57%). In the communication category, the most frequently identified strategy was *formulating speech* (44.87%). In the cognitive category, the most frequently identified strategy was *using L1 to organize thoughts* (17.06%). In the metacognitive category, the most frequently identified strategy was *evaluating language production* (24.17%). In the affective category, the most frequently strategy was *positive*

self-talk (44.90%). In the social category, the only strategy was *questioning the researcher*.

The correlations among the seven strategy categories have been examined. The correlation coefficients in bold in Table 12 indicated that there were 9 significant relationships and all of them were positively correlated. For example, approach strategies were positively correlated with rhetorical, cognitive, metacognitive, and affective strategies. If participants reported more approach strategy use, they tended to report more rhetorical, cognitive, metacognitive, and affective strategy use, and vice versa.

For the significant relationship between approach strategies and cognitive strategies and the significant relationship between metacognitive strategies and affective strategies, their effect size (r^2) in bold shown in Table 13 was more than .50, indicating a large effect size. The other seven significant relationships among categories were with the medium effect size.

Table 12
Correlations Among Seven Strategy Categories in L2 Writing

	App	Rhet	Com	Cog	Meta	Aff	Social
App	1.000						
Rhet	.385*	1.000					
Com	.277	-.016	1.000				
Cog	.662**	.282	.441**	1.000			
Meta	.401*	.039	.477**	.443**	1.000		
Aff	.479**	.172	.223	.326	.646**	1.000	
Social	.294	.268	.246	.232	.238	.376*	1.000

Note. Spearman's ρ , $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

* Correlation is significant at $p < .05$ (2-tailed). ** Correlation is significant at $p < .01$ (2-tailed).

Table 13
Effect Size for Significant Correlations Among Categories in L2 Writing

	r^a	$(r^2)^b$
App vs. Rhet	.385	.148
App vs. Cog	.662	.438
App vs. Meta	.401	.161
App vs. Aff	.479	.229
Com vs. Cog	.441	.194
Com vs. Meta	.477	.227
Cog vs. Meta	.443	.196
Meta vs. Aff	.646	.417
Aff vs. Social	.376	.141

Note. $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

^a r = The correlation coefficient at the significant level.

^b r^2 = The squared correlation coefficient.

4.3 Research Question 3: Relationship Between L1 Strategy Use and L2 Strategy Use

3. *What is the relationship between the identified L1 strategies and L2 strategies? Are there any similarities or differences?*

I first conducted a Spearman's ρ test between the participants' total L1 strategies and their total L2 strategies. Table 14 indicated that the total L1 strategy use was positively correlated with the total L2 strategy use. In other words, the participants, who reported using more writing strategies in the L1 writing task, tended to report using more writing strategies in the L2 writing task, and vice versa.

The effect size for this significant correlation was also shown in Table 14. The use of total L1 strategies was significantly correlated with the use of total L2 strategies with a medium effect size ($r^2 = .148$).

Table 14
Correlation Between the L1 Strategy Use and the L2 Strategy Use

		L2 Strategy Use	
Spearman's <i>rho</i>	L1 Strategy Use	Correlation Coefficient	.385*
		<i>Sig.</i> (2-tailed)	.023
		Effect Size (r^2) ^a	.148

Note. $N = 35$.

^a r^2 = The squared correlation coefficient.

* Correlation is significant at $p < .05$ (2-tailed).

Examining the descriptive statistics for L1 writing strategy categories (see Table 8) and L2 strategy categories (see Table 11), I found that:

1. For L1 writing, the category with the highest percentage in relation to all L1 strategies was metacognitive (27.97%). For L2 writing, the category with the highest percentage in relation to all L2 strategies was cognitive (39.07%).
2. In L1/L2 writing task, the affective category was the least identified category.
3. In terms of medians, the biggest difference between the L1 strategy use and the L2 strategy use by participants was the cognitive category. In the L1 writing task, the midpoint value in the 35 frequencies of cognitive strategies was 7.00; in the L2 writing task, the median in the 35 frequencies of cognitive strategies was 12.00.

Then, correlations were carried out to check the relationships between participants' L1 strategy use and L2 strategy use by category. As shown in Table 15 in bold, there were four categories were positively correlated between L1 and L2: approach, rhetorical, communication, and cognitive categories.

The effect size was also calculated for these four significant correlations. The indices in Table 16 indicated that the use of L1 rhetorical strategies by participants was positively and significantly correlated with their use of L2 rhetorical strategies with a large effect size ($r^2 > .25$) in bold. Other significant relationships had the medium effect size.

Table 15
Correlations Between L1 Strategy Use and L2 Strategy Use by Category

	L1 App	L1 Rhet	L1 Com	L1 Cog	L1 Meta	L1 Aff	L1 Soc
L2 App	.406*						
L2 Rhet		.677**					
L2 Com			.439**				
L2 Cog				.443**			
L2 Meta					.237		
L2 Aff						.241	
L2 Soc							.016

Note. Spearman's ρ , $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective; Soc = Social.
 * Correlation is significant at $p < .05$ (2-tailed). ** Correlation is significant at $p < .01$ (2-tailed).

Table 16
Effect Size for Significant Correlations of Categories Between L1 and L2

	Approach	Rhetorical	Communication	Cognitive
r^a	.406	.677	.439	.443
$(r^2)^b$	.165	.458	.193	.196

Note. $N = 35$.

^a r = The correlation coefficient at the significant level.

^b r^2 = The squared correlation coefficient.

Comparing the numbers of individual strategies identified in the L1 writing task and the L2 writing task, I observed that participants employed their writing strategies in a similar pattern across languages. Table 17 showed the numbers of individual strategies by seven categories. Participants employed 72 individual strategies in the L1 writing task and 71 individual strategies in the L2 writing task. Under each strategy category, the two numbers of individual strategies were similar between L1 and L2. From the category with the most number of individual strategies to the category with the least number of individual strategies, the order (cognitive > metacognitive > rhetorical > communication > affective > approach > social) was the same between L1 and L2.

Table 17
Numbers of Individual Strategies in L1/L2 Writing Tasks

	Cog	Meta	Rhet	Com	Aff	App	Social
L1	26	16	13	7	5	4	1
L2	28	16	11	8	4	3	1

Note. $N = 35$. Cog = Cognitive; Meta = Metacognitive; Rhet = Rhetorical; Com = Communication; Aff = Affective; App = Approach. Total number of individual strategies identified in the L1 writing task = 72. Total number of individual strategies identified in the L2 writing task = 71.

As for the differences between the L1 strategy use and the L2 strategy use, there were 7 unique individual strategies identified in the L1 writing task and 6 unique individual strategies identified in the L2 writing task (see Table 18).

Table 18
Unique Strategies Identified in L1/L2 Writing Task

	L1 Writing Task	L2 Writing Task
Approach	<ul style="list-style-type: none"> Selecting topics 	
Rhetorical	<ul style="list-style-type: none"> Using metaphor Using personification Using quotations 	<ul style="list-style-type: none"> Using conjunctions
Communication		<ul style="list-style-type: none"> Approximating
Cognitive	<ul style="list-style-type: none"> Using keywords Using L2 	<ul style="list-style-type: none"> Spelling Translating text from L1 to L2 Translating L2 task question to L1 Using L1 to organize thoughts
Affective	<ul style="list-style-type: none"> Lowering anxiety 	

In the rhetorical strategy category, there were three individual strategies (i.e., *using metaphor*, *using personification*, and *using quotations*) identified in the L1 writing task but not in the L2 writing task. In the interview sessions, some participants reported that they did not think their English writing ability was good enough to use some rhetorical devices. For example, one participant reported that:

那种[修辞手法]用不好。因为，那个不是第一语言嘛，那种会用错。(P10, L2 interview)

(Translation: I am not good at using those [rhetorical devices]. Since English is not my first language, I may use them wrongly.)

Among the six strategies only elicited from the L2 writing data, I found that three strategies (i.e., *translating text from L1 to L2*, *translating L2 task question to L1*, and *using L1 to organize thoughts*) were related to the action of using L1 in L2 writing. However, participants had different evaluations of the strategies involving using L1 in a L2 writing task. For example, this participant reported that *using L1 to organize thoughts* was a facilitative strategy:

你不可能一想的话，就要用英语想出来，我觉得这个有点困难。嗯，因为中文是母语嘛，你就先想出来母语。因为你想表达出来什么可以通过母语，我觉得可以表达的更清楚，更准确。但是如果你突然用第二语言的话，我会很那个什么……

(P16, L2 interview)

(Translation: It is impossible for you to think in English, and I think it is difficult. Er, since Chinese is the mother tongue, you first think in your mother tongue. You can express yourself in Chinese, which I think would be clearer and more accurate. However, if you suddenly use the second language, it would be...)

In contrast, another participant reported that thinking in Chinese was an obstructive strategy in the English writing task:

但是，就是一旦你用中文的翻译了以后，你就会发现我就会停下来，觉得这个句子不太顺。你懂吧。如果那些我很流畅的写下去的话，基本上我都是在用英文。

(P7, L2 interview)

(Translation: However, if I translated [my words] from Chinese to English, you would find that I stopped because I was thinking that the translated sentence did not read smoothly. You know, when I wrote easily and smoothly, I was thinking in English.)

It is interesting to find that some participants used L2 while completing the L1 writing task. For example, the following segment from one participant's think-aloud data provided the evidence that an English word "benefit" first came into his/her mind and then he/she searched a corresponding Chinese vocabulary in the L1 task:

因为他们在开拓中呢，会这个尝到一些这个，一些圈子大时候的一些这个 benefit。有时候这个汉语还想不出来什么词合适。呃，这样的呢，他们就不断地尝到甜头。
(P10, L1)

(Translation: When they enlarge [the circle of their life], they would get...the *benefit* of having a big social circle. Now I cannot think of any proper words in Chinese [to express this meaning]. Er, in this way, they keep getting benefits.)

Also, it is surprising to find the strategy *lowering anxiety* as a unique strategic action of participants during the L1 writing task instead of during the L2 writing task. Five participants, while composing in L1, reported the strategy *lowering anxiety*, and three of them in the post-task interview sessions attributed their anxiety to the fact that they had not done an argumentative writing in Chinese for a long time. As for the L2 writing task, participants in the present study were requested to perform the English task under a non-testing situation. This might be the possible reason that no participant reported the strategy *lowering anxiety* while composing in English in the main study.

4.4 Research Question 4: Relationship Between L1 Strategy Use and L1 Writing Performance

4. What is the relationship between L1 strategy use and L1 writing performance?

Based on the frequencies of L1 individual strategies and the values of L1 writing scores, I conducted Spearman's *rho* tests to examine the existing relationships between participants' Chinese writing performance and their strategy use by seven categories and by individual strategies.

4.4.1 L1 strategy use and L1 writing performance

First, the result of a Spearman's *rho* test (see Table 19) between the frequencies of L1 individual strategies and the values of L1 writing scores indicated that there was a negative relationship between participants' L1 strategy use and their writing performance. However, the correlation coefficient was not at the significant level. Generally, it was not necessary that the more strategies participants employed, the higher scores they would attain in the present study's L1 writing task, and vice versa.

Table 19
Correlation Between L1 Strategy Use and L1 Writing Scores

		L1 Strategy Use	
		Correlation Coefficient	-.195
Spearman's <i>rho</i>	L1 Writing Scores	Sig. (2-tailed)	.263
		<i>N</i>	35

4.4.2 L1 strategy use by category and L1 writing performance

As shown in Table 20, the correlation tests between the values of Chinese writing scores and the frequencies of individual strategies by category either did not detect any

significant relationships between participants' strategy use and their writing performance. However, four strategy categories (i.e., approach, communication, cognitive, and metacognitive categories) were negatively correlated with participants' L1 writing scores although at the non-significant level.

Table 20

Correlation Between L1 Strategy Use by Category and L1 Writing Scores

		App	Rhet	Com	Cog	Meta	Aff	Social
L1 Scores	Correlation Coefficient	-.261	.260	-.155	-.147	-.165	.128	.193
	Sig. (2-tailed)	.130	.131	.375	.398	.342	.463	.267

Note. Spearman's *rho*, $N = 35$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

4.4.3 L1 individual strategies and L1 writing performance

Studying the correlations between participants' individual strategies and their writing performance, only one individual strategy, *restarting* was negatively correlated with the participants' L1 writing scores (see Table 21). This significant correlation had a medium effect size ($r^2 = .133$).

Table 21

Correlation Between L1 Writing Scores and the Strategy "Restarting"

		L1 Writing Scores
Spearman's <i>rho</i>	Restarting	Correlation Coefficient
		-.356*
		Sig. (2-tailed)
		.036
		Effect Size (r^2) ^a
		.133

Note. $N = 35$.

^a r^2 = The squared correlation coefficient.

* Correlation is significant at $p < .05$ (2-tailed).

Restarting refers to a strategic behaviour that participants rewrite a paragraph or even a whole article. For example, this participant reported that:

我重新写了，因为发现前面写的不对。(P3, L1)

(Translation: I'm rewriting, because I find the beginning part is wrong.)

The negative relationship between the strategy *restarting* and L1 writing scores indicated that participants' use of *restarting* had a negative effect on their writing performance.

4.5 Research Question 5: Relationship Between L2 Strategy Use and L2 Writing Performance

5. What is the relationship between L2 strategy use and L2 writing performance?

4.5.1 L2 strategy use and L2 writing performance

To answer this research question, I ran Spearman's *rho* tests to examine the correlation between the participants' strategic behaviours and their performance in the L2 writing task. Table 22 presented the correlation coefficient between the frequencies of identified L2 strategies and the values of L2 writing scores. The coefficient indicated that there was no significant relationship between the participants' strategic behaviours and their writing performance in the L2 writing task. Similar as the finding to Research Question 4 concerning the relationship between the participants' L1 strategy use and their L1 writing scores, the strategies elicited from the L2 writing task were also negatively correlated with participants' final scores even though not at the significant level. The results indicated that it was not necessary that the more L2 strategies participants employed, the higher scores they would get in the L2 writing task, and vice versa.

Table 22
Correlation Between L2 Strategy Use and L2 Writing Scores

		L2 Strategy Use	
Spearman's <i>rho</i>	L2 Writing Scores	Correlation Coefficient	-.097
		Sig. (2-tailed)	.580
		<i>N</i>	35

4.5.2 L2 strategy use by category and L2 writing performance

As shown in Table 23, the correlation coefficients between the values of English writing scores and the frequencies of L2 strategies by category either did not provide the evidence that there were any significant relationships between participants' L2 strategy categories and their L2 writing performance.

Table 23
Correlation Between L2 Strategy Use by Category and L2 Writing Scores

		App	Rhet	Com	Cog	Meta	Aff	Social
L2 Scores	Correlation Coefficient	-.262	-.120	.080	.020	-.094	-.291	-.177
	Sig. (2-tailed)	.129	.492	.648	.908	.589	.090	.310

Note. Spearman's *rho*, *N* = 35. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

4.5.3 L2 individual strategies and L2 writing performance

For the question how L2 individual strategies correlated with participants' L2 writing performance, the results of Spearman's *rho* tests indicated that there were only two individual strategies having significant relationships with L2 writing scores. The use of the strategy *avoidance* was positively correlated with participants' L2 writing scores ($r = .358, p < .05$); the use of the strategy *fabricating* was negatively correlated with participants' L2 writing scores ($r = -.358, p < .05$).

The strategy *avoidance* refers to the avoidance of the topic areas or the concepts that pose language difficulties. For example, one participant avoided using an example because she was unable to express it clearly:

举一个具体的例子，specific example。Teenagers，中国的年轻人。啊，这个例子好难举啊，算了，不举了。(P20, L2)

(Translation: I'm going to provide a specific example. Teenagers, Chinese teenagers.

Ah, it is difficult to give this example. Never mind, I will not provide this example.)

Participants sometimes made up facts or stories to support their arguments in the writing, which was the strategy *fabricating*. For example, this participant reported during the L2 think-aloud writing session that:

哎呀，没写完。哎呀，算了，我随便编点理由吧。(P2, L2)

(Translation: Ah, I didn't finish it! Oh well, I will just make up some stuff.)

Generally, the participants who reported using more the strategy *avoidance* in the L2 writing task tended to get higher writing scores, and vice versa; participants who reported using more *fabricating* in the L2 writing task tended to get lower writing scores, and vice versa.

4.5.4 L2 strategy use and L2 writing performance by score-level

In addition to viewing the L2 strategy use by 35 participants as a whole group, I examined participants' L2 strategy use across two score-level groups⁶ (Level 1 Group vs. Level 2 Group). Table 24 presented the descriptive statistics for the seven categories of identified L2 strategies across two score-level groups. The medians of each strategy

⁶ Please refer to Section 3.5.2 (p. 36) for information about the division of two score-level groups.

category across two groups were very close. The only large difference in medians across two groups was the approach strategy category, whose medians were in bold.

I then ran a two-sample Kolmogorov-Smirnov test to examine the differences in participants' L2 strategy use across two groups. As shown in Table 25, there were no statistically significant differences in the seven strategy categories across the two groups.

Table 24

L2 Strategy Use by Category and Two Score-level Groups

Score level		App	Rhet	Com	Cog	Meta	Aff	Social
Level 1 (<i>N</i> = 14)	Median	6.50	4.00	1.00	13.00	9.00	1.50	1.00
	Range	11	7	13	66	24	10	6
Level 2 (<i>N</i> = 21)	Median	4.00	4.00	2.00	12.00	8.00	1.00	1.00
	Range	15	9	12	25	17	3	8

Note. Medians and ranges are based on the frequencies of L2 individual strategies. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

Table 25

Two-sample Kolmogorov-Smirnov Test for L2 Strategy Use by Two Score-level Groups

		App	Rhet	Com	Cog	Meta	Aff	Soc
Most extreme differences	Absolute	.405	.238	.310	.190	.190	.262	.238
	Positive	.405	.238	.095	.143	.190	.262	.238
	Negative	-.095	-.095	-.310	-.190	-.024	.000	-.048
K-S Z		1.173	.690	.897	.552	.552	.759	.690
Asymp. sig. (2-tailed)		.128	.728	.397	.921	.921	.612	.728

Note. Grouping Variable: Two Score-level Group. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective; Soc = Social.

Table 26

Numbers of L2 Individual Strategies by Two Score-level Groups

	Cog	Meta	Rhet	Com	Aff	App	Social
Level 1 Group (<i>N</i> = 14)	21	16	10	6	4	3	1
Level 2 Group (<i>N</i> = 21)	20	15	10	6	4	3	1

Note. Total number of individual strategies reported by Level 1 Group = 61. Total number of individual strategies reported by Level 2 Group = 59. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

Comparing the individual L2 strategies reported by the participants of two groups, I observed that they employed similar individual strategies during the L2 writing task. As shown in Table 26, there were 61 individual strategies reported by the participants from Level 1 Group, and there were 59 individual strategies reported by the participants from Level 2 Group. The participants in Level 1 Group reported five unique individual strategies: *genre awareness* (rhetorical), *approximating* (communication), *fabricating* (communication), *comparing linguistic items* (cognitive), and *reflecting on previous task* (metacognitive). The participants in Level 2 Group reported three unique individual strategies: *using parallel sentences* (rhetorical), *avoidance* (communication), and *restarting* (communication).

Meanwhile, I carried out Spearman's *rho* tests to examine the correlation between the L2 strategy use by two group participants and their L2 writing performance. The coefficients (see Table 27) between the writing scores of Level 1 Group participants and their strategy use showed that their use of communication strategies was significantly and negatively correlated with their writing performance. In addition, their use of approach, cognitive, metacognitive, affective, and social strategies were negatively correlated with their writing scores, although at the non-significant level.

Table 27

Correlation Between Level 1 Group's Strategy Use by Category and L2 Scores

		App	Rhet	Com	Cog	Meta	Aff	Social
L2 Scores	Coefficient	-.153	.190	-.677**	-.266	-.013	-.006	-.138
	Sig. (2-tailed)	.601	.515	.008	.358	.965	.984	.639

Note. Spearman's *rho*, $N = 14$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

** Correlation is significant at $p < .01$ (2-tailed).

As for the correlations between the individual strategies used by Level 1 Group and their writing performance, the results of Spearman's *rho* tests (see Table 28) indicated that there were three individual strategies having significant relationships with their writing scores. The employment of these strategies: *linking to prior experiences/knowledge* (communication), *paraphrasing* (communication), and *attending to task requirements* (cognitive) negatively affected Level 1 Group participants' L2 writing performance. The effect size was also calculated for these three significant relationships that all these negative correlations between individual strategies and L2 writing scores had the large effect size ($r^2 > .25$).

Table 28
Correlation Between Level 1 Group's Individual Strategies and L2 Scores

		Linking ^a	Paraphrasing	Attending to TR ^b
	Coefficient	-.535*	-.743**	-.677**
L2 Scores	Sig. (2-tailed)	.048	.002	.008
	Effect Size (r^2) ^c	.286	.552	.458

Note. Spearman's *rho*, $N = 14$.

^a Linking = Linking to prior experiences/knowledge.

^b Attending TR = Attending to task requirements.

^c r^2 = The squared correlation coefficient.

* Correlation is significant at $p < .05$ (2-tailed). ** Correlation is significant at $p < .01$ (2-tailed).

One example that participants used the strategy *linking to prior experiences/knowledge* was:

就是我遇到不熟悉的题目就是，尽量往自己熟悉的东西扯。(P23, L2, interview)

(Translation: If I encounter a task topic that I'm not familiar with, I would try to link the topic to the things I am familiar with.)

As for the strategy *paraphrasing*, it was that participants used different words, phrases, or sentence structures to convey a same meaning. For example, this participant reported during the L2 think-aloud writing session:

然后发现自己的语句有点贫乏，想换一些就是同义词啊，就是别的句法来避免单一。(P1, L2)

(Translation: Then, I find myself using the same words and sentence structures. To avoid repetition, I will replace some words with synonymies and use different sentence structures.)

The strategy *attending to task requirements* was that participants paid attention to the task question or requirements. For example, this participant during the L2 writing task said that:

我要再扣一下题。(P5, L2)

(Translation: I am going to write something to keep the point.)

Generally speaking, the participants from Level 1 Group who reported using more these three strategies would have a tendency to gain lower scores in the L2 writing task, and vice versa.

For the participants of Level 2 Group, the Spearman's *rho* test (see Table 29) between their L2 strategies by category and writing scores did not detect any significant relationships. Although not significantly, the frequencies of approach strategies, rhetorical strategies, and affective strategies by Level 2 Group were negatively correlated with their L2 writing scores.

The Spearman's *rho* coefficients between the frequencies of individual strategies by Level 2 Group participants and the values of their L2 writing scores either did not

provide the evidence that there were any significant relationships between individual strategies and writing scores.

Table 29
Correlation Between Level 2 Group's Strategy Use by Category and L2 Scores

		App	Rhet	Com	Cog	Meta	Aff	Social
L2 Scores	Coefficient	-.112	-.165	.287	.045	.029	-.084	.264
	<i>Sig. (2-tailed)</i>	.629	.475	.207	.847	.902	.718	.247

Note. Spearman's ρ , $N = 21$. App = Approach; Rhet = Rhetorical; Com = Communication; Cog = Cognitive; Meta = Metacognitive; Aff = Affective.

4.6 Qualitative Analyses Results

This section presents the results from the qualitative analyses of participants' reported data in terms of three aspects: pre-task reports on writing processes; post-task reflections on the strategy use; and post-task comparisons of L1 writing and L2 writing. The analyzed data came from pre-task questionnaire answers and post-task interview answers. Specifically, before the L1 and L2 writing tasks, each participant was asked to describe the general steps or approaches they might take when they compose an English argumentative writing; immediately after each L1/L2 task, each participant talked about his/her feelings and writing performance in a retrospective interview.

4.6.1 Pre-task reports on writing processes

To understand participants' perception of English argumentative writings, I asked them to answer a question that "Please describe the general steps or approaches you might take when you compose an English argumentative writing" before they performing any writing tasks in the main study. Participants' answers to this question were very similar. The general process of completing an English argumentative writing task proposed by

participants was: understanding and analyzing the task question – generating ideas/taking stances – outlining – organizing each section – developing arguments with examples – concluding – editing and revising. The slash between *generating ideas* and *taking stances* was because the order of these two was proposed differently. Some participants (28%) wrote that they would first brainstorm about the topic and then select a main idea that could be easily expressed. However, some other participants (34%) reported that the step of *taking a stance* should come before the step of *generating ideas* or finding any supporting materials.

As for the *outlining*, many participants (45%) stressed that they thought this step was necessary and important in English argumentative writings. According to one participant (P13), he reported in the questionnaire that he would outline in the English writing task rather than in the Chinese writing task. Similarly, 42% of the participants reported using the strategy *outlining* when they performed the English writing task in the present study.

There were two features of participants' answers concerning how to *develop arguments* in an English argumentative writing task. First, many participants (40%) pointed out that *providing examples* did play a very important role in this step. For example, one participant (P25) said that he would provide concrete examples in each paragraph to support his ideas. In the present study, 88% of the participants reported using the strategy *providing examples* in the L2 writing task. Second, some participants (20%) stressed the importance of objectivity in argumentative writings. One participant (P9) wrote that he would “simply present the advantages of the opposite standpoint and meanwhile the short backs of my [his] standpoint” after supporting his standpoint.

As for the *editing and revising* stage, some participants (34%) reported that it was crucial in the L2 writing. One participant (P14) said that“花很多时间修改，基本改两遍”(Translation: I spent much time on revising the article and usually revised it twice). Similarly, another participant (P34) reported that“写完以后会很仔细的去看，然后去改。认为修改很重要，好文章是改出来的”(Translation: I would read the article carefully after I finished it. Next, I edited it. I think that the editing is very important for a good article).

In addition to the general process listed above, a few participants proposed some other steps. The proposed steps included *reviewing relevant literature* (P8), *drafting* (P8, P19, P22), and *asking someone else to do the proofreading* (P35).

4.6.2 Post-task reflections on strategy use

As for the analyses of the post-task interview data, there were two main findings. First, many participants lacked the knowledge of the strategies they were using in either the L1 task or the L2 task. In other words, many participants did realize that they had employed some methods or had followed certain patterns to achieve their writing goals, but they were not aware of their strategic behaviours in the post-task interviews. Answering the interview question “Have you used any strategies during the L1/L2 writing task,” participants generally responded *no*. As for the participants who answered *yes*, I further asked them “Which strategies do you think you have used,” many of them listed only one or two strategies and the most common one named by them was the strategy *providing examples*.

Second, different participants had different evaluations of a few strategies in the L2 writing task, such as *taking notes* and *using L1 to organize thoughts*. As for the strategy *taking notes*, some participants regarded it as a beneficial strategy. For example, two participants reported that:

嗯，还是有用的，对于整理想法还是有用的。(P15, L2 interview)

(Translation: Yes, it was useful. It [taking notes] helped me to organize my thoughts.)

好用，这样就是你想到什么能记下来，就是回头再看就会好一点。(P25, L2 interview)

(Translation: It's helpful. If you write down your thoughts, you can come back to them later.)

In contrast, some participants did not take notes during the L2 writing task and one participant explained that:

在电脑上能修改，又没有痕迹。我觉得我没有这个必要。(P1, L2 interview)

(Translation: I can edit the text on the computer without leaving any traces. I don't think it is necessary [to make notes].)

In line with previous studies, some participants in the current study reported that using L1 facilitated them to perform the L2 writing, and other participants reported it as an inhibitive strategy. For example, one participant said:

就在我现在这个阶段，我还是觉得这样子比较直接一点儿。(P1, L2 interview)

(Translation: Due to my English ability, I feel that it [thinking in L1] is a more direct way.)

Some other participants reported that the strategy of thinking in L1 did not help their L2 writing. For example, one participant pointed out the indirectness of this strategy:

我觉得还不如直接想英文。就是因为有的时候中文你想的很难直接对应一个单词过去。但是因为直接想英文，打出来可能也比较流利，就不会有些错误。中文它那个语序也不一样，然后我想到了打就突然发现语序不对，又要删。(P13, L2 interview)

(Translation: I think it would be better if I could think directly in English. The reason is that it is difficult for you to find a corresponding English word after you come out a word in Chinese. If I use English to generate ideas, I might write more smoothly with few mistakes. The word order in Chinese is different from that in English. Therefore, if I think in L1 and then write in L2, I would find the wrong word order and I have to delete it.)

4.6.3 Post-task comparisons of L1 writing and L2 writing

During the post-task interview sessions, I asked participants to reflect on their feelings and experiences in the L1 and L2 writing tasks that they just performed. Based on their answers, there were three main findings concerning participants' perception on the differences and similarities between their performance in the L1 writing task and the L2 writing task.

First, participants perceived that the processes of approaching the two writing tasks were very similar. The following excerpts were two examples that participants thought that the L1 writing task and the L2 writing task shared great similarities.

我觉得思路是一模一样的.....基本上，应该没有什么不一样的地方。(P1, L2 interview)

(Translation: I think the way I developed ideas was same [in the L1 writing task and

the L2 writing task]. Basically, there was no difference.)

没有不一样的感觉，但是我觉得我所用的技巧和我在，就是刚才写英文写作的技巧是一模一样的。(P2, L1 interview)

(Translation: No different feelings, and I feel that the strategies I used in the English writing task were the same [as the strategies used in the Chinese writing task].)

Second, many participants reported that they were more confident about writing in their L1 than writing in L2 in the present study. In other words, participants were aware of the gap between their L1 writing ability and L2 writing ability. For example:

比如说我要写个英文，中文的话，我有些时候可以用一下诗词，或者用一下，一些...历史典故，因为我比较了解。所以我可能会，会知道怎么写。但是我如果用英语的话，我，典故的话也就那么几个人，就没有几个了。(P5, L2 interview)

(Translation: If I write an English, Chinese article, I would sometimes use quotations from poetries or historical stories, because I am familiar with those things. Therefore, I would know how to use them in the Chinese writing. However, if I write in English, I know only few historical stories.)

我写英文的时候我就是会想着要严格，会像小学生写作文一样。我会严格的想着那个格式到底是什么，我就怕出错。但是写中文的时候，我就觉得这个中文怎么写我都不会错，是因为我的母语。(P13, L2 interview)

(Translation: When I write in English, I would be strict with myself, just like how pupils write. I would strictly stick to writing models, because I am afraid of making any mistakes. However, I feel confident about my Chinese writing that I would never be wrong when I write in my mother tongue.)

英文的话你要去想单词啊，不仅要想它的语法啊，它的词性，拼写。中文的时候，这是第一语言，你就很自然的就写出来了。(P26, L1 interview)

(Translation: Writing in English, you have to consider vocabularies, not only their grammars, but also their properties and spellings. Writing in Chinese, your first language, you could write easier and more natural.)

Third, some participants reported that there were rhetorical differences between Chinese texts and English texts. For example, one participant pointed out the directness is a feature of English writing:

因为英语写作就强调你要直接说出你的东西，不要含含糊糊，就好像不要像语文那样。(P18, L2 interview)

(Translation: In English writing, the writer should directly express his/her main ideas with no implicit expressions, and this is different from Chinese writing.)

Similarly, another participant reported that:

就是开头我觉得，因为最大的一个意识，我最大的一个意识就是我意识到英文一开始就一定要把东西说出来，不要讲那么多废话。但是中文反而就不是，中文你可能可以扯一下，再带到你的 *topic* 那里，那样反而会比较好那样。(P18, L1 interview)

(Translation: As for the beginning part, I think that I should directly express my ideas in the English writing and I should not write unrelated things. However, it is different in the Chinese writing. You can first write in an indirect way and then come back to your *topic*, which could achieve a better effect.)

Chapter 5

Discussion

5.1 Key Findings

5.1.1 Identified L1 and L2 writing strategies

The present study investigated the L1 (Chinese) and L2 (English) writing strategies reported by 35 Chinese ESL learners in completing academic writing tasks. The research findings demonstrate that the participants have employed a wide range of strategies in both Chinese writing task and English writing task, which is consistent with the findings of recent writing strategy studies (e.g., Abdullah, 2009; Chen, 2011, Chien, 2012; Yang & Plakans, 2012). Seventy-two individual strategies have been identified from the L1 task and seventy-one individual strategies have been identified from the L2 writing task. All individual strategies are classified into seven categories (approach, rhetorical, communication, cognitive, metacognitive, affective, and social categories) according to their purposes.

For the L1 writing strategies, the most frequently identified strategies are metacognitive strategies and the least ones are affective strategies. For the L2 writing strategies, the results are in line with the findings of the previous research in language use contexts that the most frequently identified strategies are cognitive strategies (Abdullah, 2009), and that the least ones are affective strategies (Swain et al., 2009).

There are some significant relationships among strategy categories in both the L1 writing task and the L2 writing task and these relationships are all positive. This finding seems to indicate that, generally, the use of one strategy category by learners may

enhance the use of some other strategy categories. Although non-significant, there are also some negative correlations existing among L1/L2 strategy categories. Therefore, one may postulate that learners' employment of strategies is a complex set of behaviours that one kind of strategies may work with or against with another kind of strategies (Huang, 2010).

Based on the verbal reports from concurrent think-aloud sessions and post-task interview sessions, participants did evaluate the individual strategies available to them and select the ones they were able to use during each writing task. This finding supports the notion that learners would select available strategies in combinations to create and evaluate their own strategy repertoires in response to a specific task (Macaro, 2006). In addition, this finding supports the idea that both L1 and L2 writing processes are strategic, in which learners employ strategies to activate and control the writing process (Barbier & Spinelli-Jullien, 2009).

5.1.2 Transferability of strategies between L1 and L2

The correlation between participants' L1 strategy use and L2 strategy use indicates that learners may transfer their writing strategies, specifically approach, rhetorical, communication, and cognitive strategies from the L1 writing task to the L2 writing task, and vice versa. Among the identified individual strategies (L1: 72; L2: 71) in the present study, 65 of them were the same between L1 and L2. This finding echoes the results of previous writing strategy studies (e.g., Chang, 2008; Mu & Carrington, 2007) that Chinese ESL learners tended to use similar strategies between L1 tasks and L2 tasks.

To my knowledge, the current study may be the first to discover that the L1 and L2 writing strategies used by ESL learners are significantly correlated. This finding seems to

support Chamot's (2005) assumption that learners may transfer their strategies from the L1 to the L2, and vice versa. Meanwhile, the current study, to some degree, confirms Cummins' (1980) Interdependent Hypothesis that learners' L1 and L2 strategic competences, as an important aspect of language ability, are interdependent or closely related.

In this study, two possible factors may contribute to the finding of the significant correlation between the L1 and L2 strategy use. First, the L1 and L2 writing tasks performed by the participants were both argumentative writing tasks that were selected from the same writing task topic pool of the GRE General Test. Participants might have employed the same methods or followed similar patterns to approach these two tasks. Second, the participants in this study were all high-intermediate and advanced ESL learners. It is possible that the participants were able to transfer some of their strategies across language domains either positively or negatively because of their knowledge and experiences of using the L2.

5.1.3 Writing strategies differing between L1 and L2

Even though the overall writing processes and writing strategies by participants are similar between L1 and L2, the research findings suggest that there are differences between participants' L1 and L2 strategy use. First, participants reported using more cognitive strategies in the L2 writing task than that in the L1 writing task. Cognitive strategies are the strategies used to understand and produce the target language (Oxford, 1990), so that cognitive strategies are more involved in language learning/language use activities. Therefore, it is reasonable to find that cognitive strategies are the most frequently identified strategies in the L2 writing task rather than in the L1 writing task.

Second, consistent with the findings of previous L2 writing research (e.g., Jannausch, 2002; Manchon, Murphy, & Roca de Larios, 2007; Weijen, Bergh, Rijlaarsdam, & Sanders, 2009), participants in the present study used their L1 (Chinese) while attempting the L2 (English) writing task. Three individual strategies involving *the use of L1* have been elicited from the data of the main study: *translating text from L1 to L2*, *translating L2 task question to L1*, and *using L1 to organize thoughts*. As the unique strategies in the L2 writing, the frequencies of these three strategies represent 10.73% of all L2 writing strategies reported by the participants. Even though the high percentage of these three strategies, the correlations among these three individual strategies and participants' L2 writing performance lack statistical significance, and the participants in the present study have had different evaluations of *using L1* in the L2 writing task. Considering that previous L2 writing studies (Cohen & Brooks-Carson, 2001; Qi, 1998; Weijen, Bergh, Rijlaarsdam, & Sanders, 2009) have gained conflicting results that *the use of L1* could either facilitate or interfere with learners' writing performance, I argue that it is oversimplistic to claim that *the use of L1* has positive or negative impact on learners' L2 writing performance. The strategic action of using L1 might interact with other factors (e.g., learners' characteristics, tasks, and contexts) to have an impact on learners' L2 writing performance.

5.1.4 No significant relationships between L1/L2 strategy use and L1/L2 writing performance

Statistical tests have been done to examine the relationships between the identified L1/L2 strategies and the participants' L1/L2 writing scores. Consistent with research findings in language use and language testing contexts (Huang, 2010, forthcoming;

Swain et al., 2009), the present study does not detect any significant relationships between learners' strategic behaviours and their writing performance in both the L1 task and the L2 task.

The correlation between the frequency of L1 strategies and the L1 writing scores ($r = -.195, p = .263$) indicates that the use of L1 strategies by participants are negatively, non-significantly correlated with their final writing scores. Similarly, the correlation coefficient between the frequency of L2 strategies and the L2 writing scores suggests a negative relationship without statistical significance ($r = -.097, p = .580$). The correlations between the frequencies of each strategy category and the L1/L2 writing scores also suggest that language learners' strategy use is not significantly correlated with their writing performance.

An explanation of the lack of significant relationship between learners' strategy use and their writing performance might be that the interaction of learner's strategy use with other important variables (e.g., learner and task variables) has a complex relationship with learners' performance (Song, 2005) rather than a simple bi-directional relationship. As mentioned before, this study was not the first study in the language use context to find the non-significant relationship between learners' strategy use and language performance. When researchers compare different or conflicting study results concerning the relationship between these two variables, it is wise to maintain their awareness of the backgrounds of participants, the task types, and the task settings employed in the reviewed studies.

Although without statistical significance, it is surprising to find that some strategy categories (L1: approach, communication, cognitive, and metacognitive; L2: approach,

rhetorical, metacognitive, affective, and social) were negatively correlated with the participants' L1/L2 writing scores. This finding is not consistent with the results of some L2 writing studies (e.g., Chen, 2011; Yang & Plakans, 2012), which suggest that learners' writing strategies have a positive impact on their L2 performance.

Especially for the metacognitive strategies, many strategy studies (e.g., Dreyer & Oxford, 1996; Flaitz & Feyten, 1996; O'Malley & Chamot, 1990; Oxford, 1990; Wenden, 1991, 1998) in language learning/language use contexts propose that metacognitive strategies or self-regulatory strategies have a direct and positive impact on language learners' performance. The present study is consistent with the results of strategies studies (e.g., Huang, 2010; Purpura, 1997; Swain et al., 2009) finds that the employment of metacognitive strategies is negatively correlated with learners' language performance. Considering that each participant in the present study had to transfer their ideas into words while completing a challenging writing task, I may propose that the concurrent verbal reports may have taken too much cognitive resource from the participants. Especially in the L2 writing task, many participants reported that the online reports of their thoughts hindered their writings. It may explain the negative relationship between the participants' use of metacognitive strategies and their writing scores.

Researchers (e.g., Schmitt & Sha, 2009; Schreiber, 2005) propose that language learners' metacognitive knowledge may influence the kinds of strategies they choose to use and also influence the ways of using the strategies. According to Oxford (1990), metacognitive behaviours involve planning, monitoring, or evaluating language learning or language use behaviours at an executive level. Since metacognitive processes act as an executive role controlling over other strategic behaviours, its negative impact on learners'

performance in the present study may contribute to the negative relationships between the use of other strategy categories and the writing performance.

Comparing the L2 strategies used by two score-level groups, statistical tests have not detected any significant differences in the use of L2 strategies by two score-level groups (Level 1 Group vs. Level 2 Group). According to the results of statistical tests, the two groups have used similar communication strategies in the L2 writing task. The communication strategies used by Level 1 Group participants are significantly and negatively correlated with their L2 scores, but for Level 2 Group participants, there is no significant relationship between their communication strategies and their L2 scores. This finding again supports the idea that there are no consistent “good” or “bad” strategies (Macaro, 2009). Instead, how to use strategies properly might be the matter. Learning to select available strategies in appropriate combinations and at right moments is more important than knowing which strategies are “good” or “bad.”

5.2 Pedagogical implications

Pedagogically, the findings of the present study provide some insights into the strategic behaviours of Chinese ESL learners when they performed the Chinese and English academic writing tasks. First, it is important for instructors and learners to aware that writing is a strategic process in both L1 and L2 (Barbier & Spinelli-Jullien, 2009).

Second, instructors can learn that there are not necessarily positive and significant relationships between the learners’ strategy use and the quality of their written production in either L1 or L2. The findings also indicate the complexity of learners’ strategic behaviours that different strategy categories used by participants may work with or against each other. Therefore, the understanding of how and why learners “choose and

evaluate from a range of strategies” (Macaro, 2006, p. 328) is more important for instructors and researchers, rather than defining “good” language learner strategies.

Third, the research-like practices could be applied in language classes in order to raise learners’ as well as instructors’ awareness of the strategies learners tend to use in language learning and language use. Unlike strategy-training activities, which may have to achieve their effect over a long time (Macaro, 2006), the research-like practices in class enable learners to monitor and evaluate their strategic behaviours when they perform language tasks at hand. The purpose is to help learners find the effective strategies for them through self-reflective tasks in a learner-centered learning environment. As Huang (2011) pointed out, “every learner is an active transformer, rather than a passive recipient of input, situated within a community-learning culture that consists of a mediated, dialogic cycle of self-assessment, goal setting, strategy exploration, and reevaluation” (p. 256). Learners should be provided with the tools and opportunities to self-explore and self-evaluate the writing strategies they tend to use in different task contexts, and to know their preferences of strategies and how strategies work for or against different writing tasks.

The findings of the present study support the idea that learners may transfer their writing strategies from L1 to L2, and vice versa. The transfer may work positively, in which the writing knowledge or skills acquired in L1 can be beneficially applied into L2 writing tasks. Some writing skills (e.g., planning) learners have already gained in their L1 writing experiences would not be necessarily reacquired in their L2 writing (Roca de Larios, Murphy, & Marin, 2002). However, negatively, some language learners may not be willing to try out other alternative methods in L2 writing tasks, especially when they

are not confident about their L2 ability to make appropriate decisions. The transfer of writing strategies from L1 to L2 would keep them using inappropriate methods to approach L2 writing tasks, even though these methods may work in their L1 writing tasks.

Numerous researchers have pointed out the benefits for learners when they engage in reflection about their L2 writing processes and strategy use. The evidence from the present study further suggests that learners may also benefit from knowing how they usually process L1 academic writing tasks because this knowledge may inform their L2 writing practices. In other words, knowing learners' L1 writing habits, instructors may have a better understanding of learners' strategic behaviour in L2 writing. According to Barbier and Spinelli-Jullien (2009), if adult language learners keep reflecting on how they process language tasks in either L1 or L2, they may "increase their metalinguistic awareness of their language skills and working memory capacity, compared with adult monolinguals" (p. 24). Meanwhile, researchers (Pressley et al., 1989; Zhang, 2010) maintain that skills in one language could be actively transferred to a new language, only when learners become aware of the skill or have the metacognitive knowledge of that skill. Therefore, the exploration of learners' strategic actions in their L1 may expand learners' language knowledge and skills in their L2.

5.3 Limitations

The participants in the present study are ESL learners at high-intermediate and advanced proficiency levels. All participants come from a same university. For these reasons, the generalizability of the research results to other ESL learners may be limited. Future studies could replicate this study exploring the writing strategies of ESL learners at different proficiency levels, such as beginners and low-intermediated level learners.

With similar research questions, future studies could investigate whether different proficiency level participants will also report using a wide range of strategies during composing; whether they will also transfer their writing strategies between L1 and L2; and whether there is no significant relationship between their strategic behaviours and writing performance.

As for the research methods, there are several limitations about using the concurrent think-aloud technique to elicit language learners' writing strategies. First, it is highly possible that language learners would perform differently as well as report different strategies if they do not verbalize their thoughts during task (Leow & Morgan-Short, 2004; Bowles & Leow, 2005). For example, some participants reported the negative impact of this research method on their L1/L2 writing performance:

如果没有 think aloud, 我觉得我会 do better.....非常的干扰我。(P2, L2 interview)

(Translation: If there were no think-aloud, I think I would do better... It greatly interfered with my writing.)

其实如果光写的话, 我可能不紧张, 可能就是一边说一边写.....(P13, L1 interview)

(Translation: I wouldn't be nervous if I were just writing, but writing while speaking...)

One the other hand, some participants reported that the online reporting actually facilitated their L1 writing but not their L2 writing:

主要是因为写英文的时候不够流畅, 脑子中不够流畅, 然后你又让我说, 我就开始故意, 开始逼自己说一些自己的想法, 所以我刚才也说了会反过来影响我自己的写作。因为对我来说, 写英文的文章, 还有报告我自己的想法, 对我来说好像是两个任务, 会冲突。但是中文的话我就在说我要写的东西, 帮助我自己去打那

个字。(P26, L1 interview)

(Translation: When I wrote in English, I couldn't write smoothly and I didn't have many ideas. After you asked me to talk, I started to force myself to say something about my thoughts, which, just like what I said, affected my writing. For me, English writing and reporting my thoughts were two tasks, which conflicted with each other. However, when I performed the Chinese task, I reported the things I was going to write down, which helped me type the text.)

实际我的写的时候我写作的习惯就是捣鼓，但是一般考场不让你捣鼓出来。这次正好你让我捣鼓出来，就捣鼓出来了。所以我写的习惯也是边说边写。(P23, L1 interview)

(Translation: Actually, I am used to writing while self-talking, but usually people cannot talk during examinations. This time, you asked me to talk, so I can do that without problems. Writing while self-talking is my writing habit.)

The second concern about the concurrent think-aloud technique is the language used to report. Since each participant was informed that they could report in either Chinese or English, most of them used L1 to verbalize their thoughts in both the L1 task and the L2 task. According to researchers (Cohen & Brooks-Carson, 2001; Qi, 1998), learners use their L1 to express ideas while attempting L2 tasks would cause the least interruption in their cognitive processes. In contrast, Oxford (2011) argues, "it can sometimes be confusing for the learner to think aloud in the L1 while doing the task in the L2" (p. 151). The findings of the current study suggest that the relationship between reporting in the L1 and learners' L2 writing performance may not clear-cut. For example, some participants felt more comfortable reporting in their L1, but other participants reported that they were

uncomfortable when they reported in their L1 but had to compose in their L2. Another possible consequence of verbalizing in L1 is that participants may report more strategies related to *the use of L1* in the L2 writing task.

The third limitation is the researcher's effect on the participants. During all think-aloud writing sessions, I sat behind each participant to monitor verbal thinking processes. For this arrangement, some participants told me that my appearance in the room caused their nervousness and they had to force themselves to keep talking. The possible result is that the participants might report something not related to their cognitive thoughts (Bowles, 2010), even though they have been told that they should truthfully report any thoughts that come to their minds while performing the writing tasks.

5.4 Future Research Directions

In the present study, all coding decisions were based on a coding scheme, which was originally summarized from the findings of strategy studies rather than any theories of language learner strategies. This weakness is due to the general fact that the field lacks a consensus theoretically based framework to lead strategy use studies (Swain et al., 2009). According to Macaro (2009), the development of research tools of eliciting language learner strategies is also a controversial issue, because of the lack of consensus on the way of categorizing strategies, and also because it is challenging to capture learners' complex cognitive activities when they perform language tasks. Future studies on language learner strategies may benefit from cross-disciplinary research works. The coding tasks as well as the research tools could be developed based on the theories or research findings from related disciplines, for example, psychology and education.

To my knowledge, the present study may be the first to provide the statistical evidence that ESL learners may transfer their writing strategies between L1 and L2. More studies are needed to further examine the transferability of writing strategies across different task types with participants at different proficiency levels. The future studies could analyze and compare the L1 strategy use and the L2 strategy use in the following three aspects: the L1/L2 strategy use at different writing stages (i.e., what L1/L2 strategies are used in pre-writing, during-writing, and post-writing stages) (Anderson, 2000; Huang, 2010; Swain et al., 2009); the functions of L1/L2 strategies (e.g., whether a L1/L2 writing strategy works for a learner in both L1 tasks and L2 tasks); and the combinations of L1/L2 strategies (i.e., whether the strategies are used by participants in same combinations or clusters across languages, in different tasks) (Macaro, 2006).

To explore the relationship between writing strategies and writing performance, future studies need to pay more attention to the specifics of contexts (e.g., task settings, learners' variables). Researchers should go beyond simple correlational analyses, but conduct multivariate analyses to further examine the relationships among writing strategies, writing performance, characteristics of learners, and features of tasks. Also, future empirical studies should not only rely on *simple frequency counts* but other dimensions to do statistical tests. For example, some researchers (e.g., Barbier & Spinelli-Jullien, 2009; Swain et al., 2009) advocated examining writing strategies in terms of *the order/sequencing of using strategies*. Results from such studies may help in the development of a more complete picture of learners' writing strategies and of the relationship between strategy use and writing performance, or possibly in the reconstruction of researchers' understanding of writing strategies.

Conclusions

Working with 35 Chinese ESL graduate student learners, this study offers some insights into the nature of learners' strategic behaviours in both L1 (Chinese) and L2 (English) academic writing tasks. In line with previous studies on language learner strategies, the findings from the current study indicate that learners create and evaluate their own strategy repertoires in response to specific writing tasks. The findings of this study offer instructors and learners the information about the frequencies, percentages, and types of strategies used by Chinese ESL learners in academic writing tasks.

It is also significant to find that learners' overall strategic actions are similar between L1 and L2. Even though a number of non-empirical articles have proposed that language learner strategies may be actively transferred from one language to another, the current study may be the first to establish the possible link between the use of L1 strategies and the use of L2 strategies, and to provide some evidence for the potential transferability of writing strategies across languages. Based on this finding, one of the key implications proposed by the present study is that learners should be encouraged to reflect on and reconsider how they usually process L1 writing tasks in order to benefit their L2 writing. The raising of their meta-awareness of their L1 strategic competence may in turn help them expand their language skills or strategies in their L2. More studies are needed to explore the transferability of learners' strategic behaviours in different task settings with participants at different proficiency levels. Future studies need to identify which strategies learners tend to transfer across languages in performing specific language tasks, but also answer the questions of why and how.

In spite of the non-significant relationships between the L1/L2 strategy use and the L1/L2 writing performance found in the present study, I suggest that there is a more complex relationship between learners' writing strategies and the quality of their writings. Instead of positively or negatively affecting performance, language learner strategies mainly work as an intermediating role between learners and their performance in language tasks (Huang, 2010; Swain et al., 2009). According to Barbier and Spinelli-Jullien (2009), writers' strategies help them activate and control the different writing stages during a writing session. The use of certain writing strategies may not have a significant influence on learners' writing performance, but the strategies may play a role in how learners approach or process specific writing tasks.

By analyzing the reported data qualitatively, I found that many participants were not able to explain their strategic behaviours, even though they noticed that they had used some methods to complete a task. Therefore, instructors should offer opportunities and tools to raise learners' awareness of the strategies they tend to use. Engaging in research-like tasks in classrooms, learners can monitor and evaluate their performance when they approach different language learning or language use tasks. The purpose is to let learners know how they usually process language tasks and what kind of strategies they tend to use. More importantly, learners, through such raising-awareness activities, may find the effective strategies for them in different task situations.

Much like previous strategy-related studies in various language domains, the present study provides rich information about learners' strategic behaviours. The key criticism, which relates to the lack of a theoretical model in this area, remains an urgent issue for researchers to tackle in this field. While it is necessary and essential to meticulously

identify learners' strategic behaviours in different contexts and to take a number of key variables into consideration, future studies should use the findings generated during the past four decades to build a model that may facilitate the description of learners' strategies across different settings. In addition, strategy researchers may develop a theoretical framework of language learner strategies by considering the theories and research findings from other disciplines in order to move the field forward.

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Appendix A

A List of Language Learner Strategies

This is a list of language learner strategies based on the findings of four L2 studies in language use and language learning contexts (Huang, 2011; Mu & Carrington, 2007; Oxford, 1990; Swain et al., 2009).

Strategy Category	Individual Strategies
Approach strategies: what the participant does to orient him- or herself to the task	Generating ideas Making choices Developing reasons for choosing what to say/do
Rhetorical strategies: what the test-taker does to generate meaningful, cohesive, and coherent texts	Organizing strategies Cohesive strategies Genre awareness
Communication strategies: involving conscious plans for solving a linguistic problem in order to reach a communicative goal	Simplifying the message Avoiding Using L1 Paraphrasing Linking to prior experiences/knowledge Reviewing notes Organizing thoughts Repeating Elaborating
Cognitive strategies: involving manipulating the target language to understand and produce language	Attending Anticipating Using mechanical means Translating
Metacognitive strategies: involving organizing, planning, and evaluating	Setting goals Identifying the purpose of the task Planning

	Monitoring
	Self-correcting
	Evaluating
Affective strategies: involving self-talk or mental control over affect	Lowering anxiety
	Encouraging self
	Justifying performance
Social strategies: interacting with others to achieve goals	Asking questions
	Asking for help

Appendix B

Email Invitation

Subject: Request to Forward A Letter of Invitation to Your Graduate Students

Dear Graduate Secretaries,

My name is Xiaoqian Guo. I am a Master student in the department of Linguistics at the University of Victoria. I will independently conduct a research study to fulfill partial requirement for my Master of Arts degree. The study has received approval from UVic's Human Research Ethics Board, and you may verify the ethical approval of this study by contacting the Research Ethics Office.

I would be grateful if you could forward the attached letter of invitation to your graduate students.

With thanks and best wishes,

Xiaoqian Guo

Dear Graduate Students,

If you speak **Mandarin as a first language** and **English as an additional language**, please consider participating in my Master's thesis research, which is titled *L1 and L2 Writing Strategies: A Study of Chinese Graduate Student Writers Using Concurrent Think-aloud*.

If you consent to participate in this research, the two data collection sessions will be scheduled on the date and time, which are convenient for you and you will individually complete the following:

A. **Session One** (one hour and 50 minutes): a questionnaire reporting your English learning history, academic writing experiences, and educational background; a training of how to verbalize your thoughts during composing; a one hour Chinese/English writing task and concurrently reporting your thoughts; a post-task interview with me to recall the writing process in the task

B. Session Two (one hour and 30 minutes): a one hour Chinese/English writing task and concurrently reporting your thoughts; a post-task interview with me to recall the writing process in the task

I will take videos of you when you complete the Chinese writing task and the English writing task in data collection sessions. I will make every effort to conceal your identities and preserve confidentiality. Before collecting any data from you, you will be assigned with a number and only this number will be used for all collection, handling and storing of, and reporting of data.

You are under no obligation to agree to participate in this research project and please feel free to contact me if you have any questions about the study. My contact information is listed at the end of this email. Upon the completion of your participation in this study, the benefits you can expect are the opportunities of a) being aware of your Chinese and English writing strategies, which might help you achieve future English academic writing goals in a systemic and efficient way and b) receiving a \$15 UVic Bookstore gift card.

I look forward to hearing from you.

Sincerely,

Xiaoqian Guo

MA Candidate

Principal Researcher

Department of Linguistics

University of Victoria

Appendix C

Participants' Background Questionnaire

Part I. Basic Information

1. What is the number assigned to you in this research?

2. What is your age?

3. What is your gender?

Part II. Education Background

4. In which degree program are you studying currently?

5. In which discipline are you studying?

6. How many years have you been in the current program?

7a. From which university did you get your Bachelor's degree? In which area?

7b. If applicable, from which university did you get your Master's degree? In which area?

Part III. Language Background

8. In which country were you born?

9. How many years did you live/have you lived in your born country?

10. Which language is your mother tongue?

11. In which English-speaking countries did you live/have you lived?

12. How many years did you live/have you lived in the English-speaking countries?

13. What was the score for the writing section of your most recent TOEFL (iBT) or IELTS test?

14. When did you take the test in question 13?

Part IV. Writing Background

15. Is the argumentative writing in Chinese difficult for you? If yes, what is the most challenging part?

16. Is the argumentative writing in English difficult for you? If yes, what is the most challenging part?

17. Have you received any English academic writing instructions?

18. If the answer is yes for question 17, when did you receive the instruction? And from whom?

19. How many pieces of academic writing in English do you complete per term?

20. Please describe the general steps or approaches you might take when you compose an English argumentative writing.

End of the Questionnaire

Appendix D

Sample Post-task Interview Questions

1. 感觉这次写作怎么样？（How is the writing task?）
2. 在写作过程中，有没有让你觉得难的地方？（Are there any challenging parts you think you have encountered in the writing task?）
3. 你认为你有没有在写作过程中使用写作技巧？（Are there any strategies you think you have used in the writing task?）

<p>If participants answered <i>yes</i> to the question 3:</p>	<p>If participants answered <i>no</i> to the question 3:</p>
<p>4. 有哪些写作技巧你认为你用到了？ （What are the strategies you think you have used during composing?）</p> <p>5. 这些写作技巧有用吗？（Do you think these strategies are useful?）</p>	<p>4. 请描述一下你在完成这次写作任务时，大概经历了哪些步骤？（Please describe the general steps you have taken to complete the writing task.）</p>

Appendix E

Participant Consent Form

[Department of Linguistics]

Participant Consent Form

L1 and L2 Writing Strategies: A Study of Chinese ESL Graduate Student Writers Using Concurrent Think-aloud

You are invited to participate in a study entitled *L1 and L2 Writing Strategies: A Study of Chinese ESL Graduate Student Writers Using Concurrent Think-aloud* that is being conducted by Xiaoqian Guo.

Xiaoqian Guo is a Master student in the department of Linguistics at the University of Victoria. As a graduate student, I am required to conduct research as part of the requirements for a degree in Applied Linguistics. It is being conducted under the supervision of Dr. Li-Shih Huang.

Purpose and Objectives

The purposes of this research project are to analyze Chinese and English composing strategies of Chinese English-as-a-second-language (ESL) graduate student writers and to study the relationship between Chinese/English writing strategies and Chinese/English writing performances.

Importance of this Research

Research of this type is important because it will compare the writing processes in the first language (L1) and the writing processes in the second language (L2), which would facilitate the understanding of the differences and similarities in L1 and L2 writing activities.

Participants Selection

You are being asked to participate in this study because you are a) a native speaker of Mandarin, b) an English-as-a-second-language speaker, and c) a graduate student at the University of Victoria.

What is involved?

If you agree to voluntarily participate in this research, you will participate in two data collection sessions on two different days. Before collecting any data, you will be randomly assigned with numbers.

Session one will take one hour and 50 minutes of your time. First, you will complete a background questionnaire. Then, I will train you to verbalize every thought coming to your mind during composing with a 5-minute think-aloud practice task of writing a short English paragraph. If you are assigned with an odd number, you will perform a Chinese argumentative writing task. If you are assigned with an even number, you will perform an English argumentative writing instead. Immediately after the writing task, I will carry out a retrospective interview with you to recall the writing process.

Session two will take one hour 30 minutes of your time. First, you will perform the English writing task if you have taken the Chinese writing task in session one; you will perform the Chinese writing task if you have taken the English writing task in session one. There will also be a retrospective interview after the writing task in session two.

During the processes of composing and verbalizing, videotapes will be taken of you with your permission. The transcription of your verbalized words will be made. During retrospective interviews, audiotapes and written notes will be taken.

The two data collection activities will be scheduled at days and time of your convenience and will be carried out in a lab room in the department of Linguistics at the University of Victoria.

Inconvenience

All data collection activities will be carried out on the campus of the University of Victoria. If you live far away from the campus, it may cause some inconvenience to you in terms of transportation.

Risks

There are no known or anticipated risks to you by participating in this research.

Benefits

Your participation in this research will raise your awareness of the employment of Chinese and English writing strategies during composing, which might help you achieve the writing goals in a more effective and systemic way in the future English and Chinese writing activities.

The research results will facilitate the understanding of the relationship between English writing strategies and English writing performance of Chinese graduate students, which would help English-as-a-second-language writing teachers to develop and improve their pedagogy.

Compensation

As a way to compensate you for any inconvenience related to your participation, you will be given a 15-dollar UVIC Bookstore gift card. If you agree to participate in this study, this form of compensation to you must not be coercive. It is unethical to provide undue compensation or inducements to research participants, if you would not participate. If the compensation is not offered, then you should decline.

Voluntary Participation

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will be removed from database and will not

be used. If you withdraw during or anytime after data collection, you will still receive the full compensation.

On-going Consent

To make sure that you continue to consent to participate in this research, after the first data collection activity, I will send you an email to ask whether you are willing to participate in the second data collection activity. Your reply of “yes” to my email will be documented as the ongoing consent.

Anonymity

In terms of protecting your anonymity, you will be randomly assigned with a number before the first data collection activity. Only this number will be used for all collection, handling and storing of, and reporting of your data.

Confidentiality

Your confidentiality and the confidentiality of the data will be protected. I will be the only person who has the right to collect, store, and access your data. I will store the videos and audios taken from you as password protected files in my computer. I will store your Chinese and English writing samples in a locked cabinet in the UVIC library.

Dissemination of Results

It is anticipated that the results of this study will be shared with others in my Master’s thesis presentation.

Disposal of Data

After this research project, the electronic data (videos and audios) collected from you will be erased. The paper copies of your Chinese and English writing samples will be shredded.

Contacts

Individuals that may be contacted regarding this study include the researcher Xiaoqian Guo and the researcher's supervisor Dr. Li-Shih Huang.

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria.

Your signature below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Visually Recorded Images/Data

- Videos may be taken of me for: Analysis _____

Name of Participant

Signature

Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix F
Coding Scheme

Category	Individual Strategy & Definition	Example
Approach Strategies	Developing reasons: Participant providing reasons for what he/she is doing or what he/she is going to do	“因为题目比较抽象，所以就会用自己的话把题目解释一下。”(P34, L1) (I will use my own words to explain the task question, since this question is very abstract.)
	Generating ideas: Participant generating new ideas regarding the topic	“为什么它不是最有效的方法呢？因为我觉得……青年人是不是变化的都比较快。而且，他们的潮流有的会能成为主流，但是有的就成为非主流。”(P16, L2) (Why is it [the trend of youth] not the most effective way [to understand the contemporary culture]? I think the reason might be that young people change their minds or their ways of doing things quickly. Besides, what they regard as fashion sometimes becomes the main stream of current culture, and sometimes doesn't.)
	Identifying task requirements: Participant analyzing task questions or	“‘Contemporary culture’? I'm trying to understand the meaning of this topic.” (P15, L2)

	identifying task requirements	
	Selecting topics: Participant selecting a writing topic from several choices	“我现在正在写，就是成年人和中年人。然后，我在想我要不要写上老年人。”(P1, L2) (I'm writing about adults and middle-aged people. I'm thinking whether I should talk about seniors.)
Rhetorical Strategies	Attending to cohesion: Participant paying attention to the cohesion of text	“嗯，我正在看看段落之间的关系，看看是否能够衔接的比较好。”(P15, L1) (I'm checking the connections between paragraphs and I want to make it more cohesive.)
	Contrastive rhetoric awareness: Participant realizing rhetoric differences between L1 writing and L2 writing	“因为英语写作就强调你要直接说出你的东西，不要含含糊糊，就好像不要像语文那样。”(P18, L2 interview) (In English writing, the writer should directly express his/her main ideas with no implicit expressions, and this is different from Chinese writing.)
	Defining terms: Participant defining terms used in the text	“First, I got to define the contemporary culture. What is contemporary culture?” (P2, L2)
	Genre awareness: Participant being aware of text genres	“这是说啥呢？这是个议论文啊……哎呀，要是让我写记叙文多好啊。”(P4, L1)

	(What is this question about? This is an argumentative topic... Ah, I wish I could write a narrative article.)
Providing examples: Participant providing examples or cases in point	“举这个例子好了，‘Beijing opera is very famous...’。”(P13, L2) (I think I will take this as an example, ‘Beijing opera is very famous...’)
Summarizing: Participant summarizing previous information	“先总结一下前面的例子。”(P7, L1) (I will first summarize previous examples.)
Taking stances: Participant taking a stance on the topic statement	“首先，我非常同意该题目的论点。”(P14, L1) (First, I totally agree with the statement in this task question.)
Using conjunctions: Participant using conjunction words	“实验者：你觉得你在写作过程中有使用写作技巧吗？ 参与者 29：写作技巧，排比句算不算。然后，还有一些什么 firstly, secondly, 就是这种承接的词。”(P29, L2 interview) (Researcher: Have you used any writing strategies during this writing task? P29: Writing strategies... Is using

	parallel sentences a writing strategy? Besides, [I've used] some conjunction words like 'firstly, secondly'.)
Using contrasts: Participant comparing in such a way as to emphasize differences	“说完老人就是说少年，要形成对比。”(P11, L2) (After talking about old people, I will focus on young people, to form a contrast.)
Using metaphor: Participant using an image, story, or tangible thing to represent a less tangible thing	“恩，先说中国传统文化当中总是把人的生活或者是生命比喻成一个圈，圈就是很局限的东西。”(P7, L1) (First, I will point out that 'life' is always compared to a 'circle' in Chinese traditional culture. 'Circle' is something with limitations.)
Using models or formats: Participant using writing models or formats	“这个是托福题目，还是 GRE 题目？ GRE 题目.....那就只能按 GRE 的套路来写了。GRE 的套路是什么？首先是同意还是不同意。”(P31, L2) (Is this a TOEFL writing question or a GRE writing question? A task question from GRE test. Then, I have to use the model for GRE test. What is the model? First, I have to say whether I agree or disagree [with the statement].)

	<p>Using parallel sentences: Participant wording two or more sentences in a same pattern</p>	<p>“第一段，怎么陈述观点，用了 一个排比句，用了排比句开 始。”(P7, L2) (The first paragraph, how can I express my viewpoint? Use a parallel sentence. Begin with a parallel sentence.)</p>
	<p>Using personification: Participant attributing a personal nature or human characteristics to something nonhuman</p>	<p>“又（用了）一个拟人。”(P2, L1) (I just used personification again.)</p>
	<p>Using quotations: Participant using quotations to support arguments</p>	<p>“用句中国的古话：‘从简入奢易，从奢入简难’。”(P27, L1) (Use a Chinese proverb: “it is easy to get used to a rich life when you start poor, but it is difficult to get used to a poor life when you start rich.”)</p>
<p>Communication strategies</p>	<p>Approximating: Participant using an alternative term which expresses the meaning of the target lexical item as closely as possible</p>	<p>“实验者：那你在写的过程怎么克服这个困难的？ 参与者 27：拼音……或者是说想不起来这个词，我就拿其他的词去解释它。”(P27, L2, interview) (Researcher: how did you solve this problem during the task? P27: Using pinyin... Sometimes, if I cannot think of a word, I would use others words to explain it.)</p>

<p>Avoidance: Participant avoiding topic areas or concepts that pose language difficulties</p>	<p>“举一个具体的例子，specific example。Teenagers，中国的年轻人。啊，这个例子好难举啊，算了，不举了。”</p> <p>“I’m going to provide a specific example of teenagers, Chinese teenagers. Ah, it is difficult to give this example. Forget it, I will not provide this example.”(P20, L2)</p>
<p>Fabricating: Participant making up facts or stories to complete the writing task</p>	<p>“哎呀，没写完。哎呀，算了，我随便编点理由吧。”(P2, L2)</p> <p>(Ah, I didn’t finish it! Oh well, I will just make up some reasons.)</p>
<p>Formulating speech: Participant formulating and organizing speech</p>	<p>“我现在正在举例子，举我想到的例子。但我一边又在组织我的语言。”(P1, L1)</p> <p>(I’m giving examples, giving examples I can think of. At the same time, I’m organizing my speech.)</p>
<p>Linking to prior experiences/knowledge: Participant linking to one’s previous experiences or knowledge</p>	<p>“我首先是想到一个例子是我之前听说过的一本书，是关于科技和现在的多媒体和娱乐如何圈限了人现在的思维和精神生活。”(P1, L1)</p> <p>(The first example that comes to my mind is a book I’ve heard, which is about how technology, media, and entertainment limit</p>

		people's thinking nowadays.)
	Paraphrasing: Participant using different words, phrases, or sentence structures to convey a same meaning	“然后发现自己的语句有点贫乏，想换一些就是同义词啊，就是别的句法来避免单一。”(P1, L2) (Then, I find myself using the same words and sentence structures. To avoid repetition, I will replace some words with synonymies and use different sentence structures.)
	Restarting: Participant restarting writing	“我重新写了，因为发现前面写的不对。”(P3, L1) (I'm rewriting, since I found the beginning part is wrong.)
	Simplifying: Participant simplifying messages or linguistic items	“这时候不要去追求复杂的句子。Keep it simple, make it understood.”(P2, L2) (No complex sentences now. Keep it simple, make it understood.)
Cognitive Strategies	Analyzing linguistic items: Participant analyzing a linguistic item	“‘Only if’，这个好像太绝对了。”(P24, L2) (‘Only if’, this expression seems too absolute.)
	Anticipating problems: Participant anticipating possible problems	“我觉得我如果继续讨论下去，又会造成偏题了。”(P21, L2) (I think my writing will run off-track, if I develop my argument like this.)
	Attending to language	“写文章我觉得最好避免‘大概’，

<p>production: Participant paying attention to language production</p>	<p>“估计”这样的术语出现，因为会显得很不专业。”(P21, L1)</p> <p>(I should avoid using the expressions like ‘probably’ or ‘estimated’, because those words make my writing unprofessional.)</p>
<p>Attending to readers’ needs: Participant paying attention to readers’ needs</p>	<p>“我开始觉得我是在想那些读者他们希望看到什么，然后（我）去写。”(P2, L1)</p> <p>(I realize that I would consider my readers’ expectations before I write.)</p>
<p>Attending to task requirements: Participant paying attention to task requirements</p>	<p>“题目中的危机和问题，这里也要提一下。”(P8, L1)</p> <p>(Here, I should mention ‘the crisis and problems’ which appears in the task question.)</p>
<p>Code switching: Participant using L1 while speaking in L2 or using L2 while speaking in L1, which happens during think-aloud process to facilitate writing</p>	<p>“他们外表看起来很 modern，但是内心里面还是很传统。”(P2, L2)</p> <p>(They appear to be modern, but they are very traditional inside.)</p>
<p>Comparing linguistic choices: Participant comparing linguistic choices and selecting one</p>	<p>“‘体悟’还是‘体会’呢？‘体悟’，‘体悟’比较高级。”(P2, L1)</p> <p>(‘Realize’ or ‘feel’? ‘Realize’, ‘realize’ sounds more advanced than ‘feel’.)</p>
<p>Editing – addition: Participant</p>	<p>“‘倘若生活都不能’，‘倘若连基</p>

adding text segments without affecting meaning	本的生活都不能’, 用词要准确。”(P6, L1) ('If even the life cannot...' 'If even the basic life cannot...' Should be accurate.)
Editing – deletion: Participant deleting text segments without affecting meaning	“这句话是一样的, 应该删掉。”(P11, L2) (This sentence is the same [as the last], should be deleted.)
Editing – format: Participant editing the text format	“然后编辑一下段落, 把它都分开, 这样会比较清晰一些。”(P15, L1) (I'm editing my paragraphs. I separate them to make it clearer.)
Editing – grammaticality: Participant correcting grammatical mistakes	“我现在在改语法错误。”(P3, L2) (I'm correcting my grammatical mistakes.)
Editing – punctuation: Participant editing punctuations	“嗯, 打个引号给 20%。”(P2, L1) (Add a quotation mark to '20%.')
Editing – relocating: Participant relocating words, phrases, or sentences	“我觉得 fashion 这段应该提到前面.....就扔第二段吧。”(P27, L2) (I think the paragraph about fashion should be brought forward... Ok, throw it in the second paragraph.)
Editing – spelling errors: Participant correcting spelling mistakes	“我的 contemporary 全写错了。”(P14, L2) (I misspelled all 'contemporary's.)
Editing – substitution:	“ 'Especially for old people', 换一

Participant substituting words or phrases without affecting meaning	<p>个词, ‘especially for old citizens’。”(P13, L2)</p> <p>(‘Especially for old people’.</p> <p>Should change the word.</p> <p>‘Especially for old citizens’.)</p>
Spelling: Participant trying to spell a word	<p>“Analyze, analyze 怎么拼啊? A-n-a-l-y-z-e, 嗯, 自动校正功能。”(P19, L2)</p> <p>(How to spell ‘analyze’? A-n-a-l-y-z-e, yeah, the AutoCorrect function of Word.)</p>
Organizing thoughts: Participant arranging one’s thoughts into an orderly, functional, structured whole	<p>“为什么说改变生活状态就是一种冒险呢? 因为它可能使他失去他可能已经拥有的东西。我怎么样才能够说改变就一定是冒险呢? 改变有可能会让你丢掉你已经拥有的资源, 而你也并没有得到你想要有的。”(P8, L1)</p> <p>(Why do people say that changing life style is like taking a risk? Because changes may cause people to lose what they already have. How can I prove that changes must bring risks? It is possible that changes can cause people to lose their resources, and at the same time people cannot get what they want.)</p>
Outlining: Participant	“承认年轻人对当代文化的影

outlining to organize thoughts 响，可以从几个方面来说。首先年轻人是当代文化的主要参与者，the main social actor。他们一方面创造了……一方面他们创造了很多当代文化的东西，另一方面，他们也消费了很多当代文化的东西。”(P20, L2)

(To argue that how young people influence contemporary culture, I can develop my writing from several aspects. First, young people are major participants in the contemporary culture, the main social actor. They created... They create the contemporary culture. Meanwhile, they consume the contemporary culture.)

Pausing/resuming: Participant leaving a message unfinished and completing it later

“开头先放在这里吧。先写下面造成有限资源的原因吧……好，这里可以回来写开头。”(P20, L1)

(Leave the opening paragraph here. I'm going to write the next part instead, about the reasons causing limited resources... Ok now, I can come back to finish the first paragraph.)

Recalling vocabulary: Participant thinking of English or Chinese vocabularies

“我在想英语单词。”(P13, L2)

(I'm thinking about an English word.)

<p>Recalling previous task: Participant recalling one's previous task performance</p>	<p>“那我想好了，其实我这个我能说的并不多。然后，哦，我可能只举出，就只能用一段来写我的想法……不像上一篇文章我需要给出我两个想法这样子。”(P1, L2)</p> <p>(I don't think I can write a lot on this topic. Then, I might write only one paragraph to express my ideas... Different from the previous writing task when I wrote from two perspectives.)</p>
<p>Rereading: Participant reading what one has written</p>	<p>“我现在正在读这个，想找出下一句要写什么。”(P2, L1)</p> <p>(I'm reading what I've written and trying to figure out what I'm going to say.)</p>
<p>Revising: Participant revising the text which affects meaning</p>	<p>“‘Modern society’ is not precise, 我要把这个英文改成‘信息时代’。”(P2, L2)</p> <p>(The expression ‘modern society’ is not precise. Replace it with the phrase ‘information age’.)</p>
<p>Translating text from L1 to L2: Participant translating literally word, a phrase, or a structure from L1 to L2</p>	<p>“嗯，因为它的地位，‘because of its status in all operas’.”(P13, L2)</p>
<p>Translating from L2 to L1: Participant translating literally</p>	<p>“局限和有限的关键性是容易使人产生 confuse 的，confuse 中文</p>

a word, a phrase, or a structure from L2 to L1	是啥。”(P15, L1) (The importance of restrictions or limitations tends to confuse people. What is the Chinese for ‘confuse’?)
Translating L2 task question to L1: Participant translating a task question from L2 to L1	“Analyze the trend of its youth.....了解当代文化的一个有效的方式就是分析.....youth?”(P5, L2)
Using keywords: Participant using keywords to generate ideas or organize thoughts	“实验者: 然后我看你刚才说你列了一个提纲, 你觉得提纲有用吗? 参与者 23: 也没, 这页写的不到 20 个字, 但是就是写一些关键词嘛, keywords, 帮我自己把那个理顺一下。”(P23, L1 interview) (Researcher: You said that you outlined during the task. Do you think the outline is useful? P23: Not really. I wrote less than 20 words. They are keywords, helping me organize my thoughts.)
Using L1 to organize thoughts: Participant thinking in L1 to generate ideas or organize thoughts in a L2 writing task	“我发现要写起来还是比较难的, 就即使我用母语来思考。”(P1, L2) (I find this writing task is difficult, even thinking in my first language.)
Using L2: Participant thinking in L2 to generate ideas or	“我会用英文的思路, 写中文的时候。”(P30, L1)

	organize thoughts	(I would think in English when I do the Chinese writing task.)
	Using mechanical means: Participant making marks or taking notes	“我又想到一个什么东西，我要先把它写下来，省的我待会儿又忘了。”(P29, L1) (I have a new idea now. I need to write it down, in case I will forget it.)
Metacognitive Strategies	Evaluating affective state: Participant evaluating his/her emotion, attitude, or motivation	“一开始比较紧张，到后来，但我在想这些例子，还有写这些东西的时候，好像就有点忘记了。”(P15, L1 interview) (I was nervous at the beginning. I forgot my nervousness as I was thinking about the examples and writing those examples.)
	Evaluating comprehension: Participant evaluating his/her comprehension of a task question	“我觉得我没有理解题目到底是什么意思。”(P3, L1) (I feel that I don't understand the meaning of the task question.)
	Evaluating language ability: Participant evaluating his/her L1 or L2 language ability	“词汇量太缺乏了。”(P6, L2) (I have a poor vocabulary.)
	Evaluating language production: Participant evaluating his/her written production	“觉得第二段第三段有一点点重复，但是又不完全一样。”(P10, L2) (The second paragraph and the third paragraph are a little bit repetitive, but they are not totally

	the same.)
Evaluating mental processes: Participant evaluating his/her mental processes and cognitive activities	“我觉得我的思路还没有打开。我不知道是因为这个条件下，不知道是因为什么方面的原因，没有说很多东西一下子踊跃到我的脑海里面，而是要拼命去想。”(P21, L1) (I feel I'm short of ideas. I don't know why, maybe because of this situation, I don't have much coming to my mind, and I have to try hard to generate ideas.)
Evaluating performance: Participant evaluating his/her task performance	“这个英文明显写的比中文慢很多。”(P13, L2) (It is obvious that I'm writing this English task much more slowly than the Chinese one.)
Evaluating strategies: Participant evaluating the usage of a strategy	“所以说审题对自己帮助很大，如果说审题的话，你可以发现很多，可以让你想到一些方面去想这个问题，就会更加全面。”(P21, L1 interview) (Therefore, analyzing the task question is helpful. If I analyze the question, I can think from many perspectives and think more comprehensively.)
Evaluating writing task: Participant evaluating a writing	“这个题目出的不好，写的太笼统了，你知道吧，你这让人不好

task	分析。”(P16, L2) (This task question isn't good, too general. You know, it is difficult to analyze.)
Goal-setting: Participant establishing specific objectives for a writing task	“我还是要写一个正面的观点。为了凑足字数，为了圆满的完成这个任务。”(P6, L1) (I still need to write a supporting argument. To have enough words for accomplishing the writing task successfully.)
Identifying problems: Participant identifying problems occurred in writing tasks	“然后发现以前找近义词很容易，但是今天我要想很久。”(P2, L2) (Thinking of synonymies is usually easy for me, but today I have to take a longer time.)
Monitoring language production: Participant observing, checking, and controlling one's written production	“就是在写的时候一直在想自己的语法有没有错。”(P1, L2) (I keep paying attention to grammar while I'm writing.)
Monitoring mental processes: Participant observing, checking, and controlling one's mental processes and cognitive activities	“嗯，在写作的过程中，这是一个变化的一个东西。因为我一开始在想的时候，我不知道我是支持它还是反驳它。但是在写的时候，我想到一些东西，我变成了支持它。但是写着写着，我又觉得它有一些缺点，所以我又反驳

它。最后我是反驳它的。”(P27, L1 interview)

(During the writing, my stance on this topic changes. At first, I didn't know whether I should agree or disagree. While generating some ideas, I started to agree with the topic. However, I later on found some weaknesses of the statement, and then I decide to disagree. Finally, I expressed my disagreement.)

Monitoring time: Participant monitoring and controlling time during a writing task

“想一下，我现在还有 15 分钟时间……”(P21, L2)
(Let me think. I have 15 minutes left...)

Overviewing: Participant overviewing a text after finishing it

“我现在把文章读一遍，这样可以帮我理清一下思绪。”(P8, L2)
(Now I'm overviewing the whole article, because this can help me organize my thoughts.)

Planning: Participant making plans for a writing task

“第一个应该属于从正面讲一下，第二个应该从反面讲一下。从正面去讲，也就是人生突破了这种有限资源，会获得什么有利的方面。反面就是安于现状会有什么不利方面。”(P19, L1)
(The first part will talk about the

		benefits people can gain if they use more resources instead of limited ones. The second part will focus on disadvantages when people are satisfied with things as they are.)
	Reflecting on previous task: Participant thinking carefully about a previous task performance, which influences his/her current task performance	“这个似乎比刚才那个好写点。当然了，其实英文也不好写，又是一开始很难。因为刚才没有定义那个东西，但是现在觉得先定义一下比较好。”(P33, L2) (This task seems to be easier than the previous one. Of course, English writing is also difficult, especially at the beginning. I didn't define terms in the previous task, I think it would better if I could provide definitions at the beginning this time.)
Affective Strategies	Justifying affective state: Participant justifying one's emotion, attitude, or motivation	“就是你觉得你没有东西写，没有东西说，不知道该说什么，就是很烦躁。”(P5, L1, interview) (You know you have little to write about and you have no idea what you are going to say. You feel upset and anxious.)
	Justifying performance: Participant justifying one's task performance	“因为好久没有写过了，所以觉得有点生疏。”(P7, L1 interview) (Since I haven't written [an argumentative essay] for a long

		time, I feel a little unfamiliar with the writing process.)
	Lowering anxiety: Participant reducing the feelings of worry, nervousness, or unease	“其实我都不知道我自己在说什么。别急，一步一步来。”(P16, L1) (Actually, I don't know what I'm doing. Don't panic. Take it step by step.)
	Overriding affective state: Participant trying to control or overcome one's negative emotions	“我觉得这篇写的很失败啊。好久没写了。。。没事，继续写吧。”(P27, L2) (I think I've failed this writing task. It's been a long time since my last writing task... Ok, just keep writing.)
	Positive self-talk: Participant making positive statements	“哎呀，这句话太完美了。”(P2, L2) (Yeah, this sentence is perfect.)
Social Strategies	Questioning the researcher: Participant asking the researcher questions for clarification or verification	“它这个 youth 指的是 20.....20 多岁是吧？”(P10, L2) (Does the word 'youth' in the task question mean '20 years old'?)

Appendix G

Grading Criteria for 2 Writing Samples

Score of 6

A 6 paper presents a cogent, well-articulated analysis of the complexities of the issue and conveys meaning skillfully.

A typical paper in this category:

- presents an insightful position on the issue
- develops the position with compelling reasons and/or persuasive examples
- sustains a well-focused, well-organized analysis, connecting ideas logically
- expresses ideas fluently and precisely, using effective vocabulary and sentence variety
- demonstrates facility with the conventions (i.e., grammar, usage and mechanics) of standard written English, but may have minor errors — Provides detailed information about the nature of the Analytical Writing measure and the value that it adds above and beyond the Verbal Reasoning and Quantitative Reasoning measures. Also contains score interpretation information.

Score of 5

A 5 paper presents a generally thoughtful, well-developed analysis of the complexities of the issue and conveys meaning clearly.

A typical paper in this category:

- presents a well-considered position on the issue
- develops the position with logically sound reasons and/or well-chosen examples
- maintains focus and is generally well organized, connecting ideas appropriately
- expresses ideas clearly and well, using appropriate vocabulary and sentence variety
- demonstrates facility with the conventions of standard written English, but may have minor errors

Score of 4

A 4 paper presents a competent analysis of the issue and conveys meaning adequately.

A typical paper in this category:

- presents a clear position on the issue
- develops the position on the issue with relevant reasons and/or examples
- is adequately focused and organized
- expresses ideas with reasonable clarity
- generally demonstrates control of the conventions of standard written English, but may have some errors

Score of 3

A 3 paper demonstrates some competence in its analysis of the issue and in conveying meaning, but is obviously flawed.

A typical paper in this category exhibits one or more of the following characteristics:

- is vague or limited in presenting or developing a position on the issue
- is weak in the use of relevant reasons or examples
- is poorly focused and/or poorly organized
- presents problems in language and sentence structure that result in a lack of clarity
- contains occasional major errors or frequent minor errors in grammar, usage or mechanics that can interfere with meaning

Score of 2

A 2 paper demonstrates serious weaknesses in analytical writing.

A typical paper in this category exhibits one or more of the following characteristics:

- is unclear or seriously limited in presenting or developing a position on the issue
- provides few, if any, relevant reasons or examples
- is unfocused and/or disorganized
- presents serious problems in the use of language and sentence structure that frequently interfere with meaning
- contains serious errors in grammar, usage or mechanics that frequently obscure meaning

Score of 1

A 1 paper demonstrates fundamental deficiencies in analytical writing.

A typical paper in this category exhibits one or more of the following characteristics:

-
- provides little or no evidence of the ability to understand and analyze the issue
 - provides little or no evidence of the ability to develop an organized response
 - presents severe problems in language and sentence structure that persistently interfere with meaning
 - contains pervasive errors in grammar, usage or mechanics that result in incoherence
-

Score of 0

A typical paper in this category:

- is off-topic (i.e., provides no evidence of an attempt to respond to the assigned topic), is in a foreign language, merely copies the topic, consists of only keystroke characters or is illegible or nonverbal.
-

Score of NS

A typical paper in this category is: blank
