

## DOCTOR OF PHILOSOPHY

### The Use of English Transition Markers in Chinese and British University Student Writing

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# **The Use of English Transition Markers in Chinese and British University Student Writing**

*A thesis submitted in partial fulfilment of the University's  
requirements for the Degree of Doctor of Philosophy in  
Applied Linguistics*

By

**Chao Han**

September 17, 2018





## **Certificate of Ethical Approval**

Applicant:

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Project Title:

Interactive metadiscourse in successful Chinese students academic writing in English

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Low Risk

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## ABSTRACT

Chinese students are the largest group of overseas students in the UK (Leedham 2015), so various studies have been conducted to compare their academic writing with native English speakers'. Metadiscourse resources are very important devices to show how the writer responds to his or her potential readers (Hyland 2005; Ädel 2006), but little research has been carried out to examine how Chinese and English student writers employ them in detail in their assignments. Furthermore, fewer studies have been carried out to compare the writing of the two groups of students with highly-matched texts. The present study was carried out to investigate Chinese and English student writing using a highly-matched corpus in terms of level, discipline, and genre family. It aimed to identify transitions and the use of transitions in student academic writing.

The findings show similarities in the writing of the Chinese and English students. They both tended to use transitions more frequently in non-science disciplines (e.g. *Law* and *Linguistics*) and discursive genre families (e.g. *Critique* and *Essay*), while they both tended to employ less frequently in science disciplines (e.g. *Food Science* and *Biology*) and in technical genre families (e.g. *Methodology Recount* and *Design Specification*).

Since English students are native English speakers and they may have greater prior exposure to academic writing, their writing reflects better understanding of the transition items in terms of meaning and formality. On the other hand, since Chinese students are non-native English speakers, they have more English grammar courses before their undergraduate education. As a result, the use of punctuation with transitions is more accurate in their writing. Furthermore, English students appear to be more sophisticated in their use of co-occurring transitions (e.g. *and thus*, *but nevertheless*). This has not been previously revealed in the literature. Both groups of students make both appropriate and inappropriate use of transitions which are worthy of note.

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## LIST OF ABBREVIATIONS

AGR	Agriculture
AH	Arts and Humanities
AWA	Academic Writing at Auckland
BAWE	British Academic Written English
BIO	Biology
BUS	Business
CA	Conjunctive Adverbials
CH	Chinese
COCA	Corpus of Contemporary American English
CQL	Corpus Query Language
CRI	Critique
CS	Case Study
CYB	Cybernetics
DS	Design Specification
EAP	English for Academic Purposes
ECO	Economics
EMP	Empathy Writing
EN	English
ENG	Engineering
ES	Essay
EXP	Explanation
FLOB	Freiburg-Lancaster-Oslo/Bergen
FS	Food Sciences
GCE	General Certificate of Education
HLTM	Hospitality, Leisure and Tourism Management
LIN	Linguistics
LOCNESS	Louvain Corpus of Native English Essays
LS	Life Sciences
LSWE	Longman Spoken and Written English

MA	Master of Arts
MICASE	Michigan Corpus of Spoken Academic English
MICUSP	Michigan Corpus of Upper-level Student Papers
MR	Methodology Recount
NR	Narrative Recount
OLDAE	Oxford Learner's Dictionary of Academic
OSA	Overseas All
PICAE	Pearson International Corpus of Academic English
PIP	Paragraph-initial Position
POL	Politics
PQ	Problem Question
PR	Proposal
PS	Physical Sciences
PSY	Psychology
PUB	Publishing
SFG	Systemic Functional Grammar
SFP	Sentence-final Position
SIP	Sentence-initial Position
SMP	Sentence-medial Position
SOC	Sociology
SS	Social Sciences
T2K-SWAL	TOEFL 2000 Spoken and Written Academic Language
TESOL	Teaching English to Speakers of Other Languages
UKA	United Kingdom All

# **Chapter 1 Introduction**

## **1.1 Metadiscourse in academic writing**

It is widely believed that good academic writing is not only concerned with clarifying the writer's position, but also takes the audience's response into account. In other words, language expressions in good academic texts not only present information and external reality, but also make themselves understandable and acceptable from the perspective of readers. In order to communicate effectively, writers tend to analyse their readers' needs and expectations, and then choose appropriate linguistic expressions. Those expressions that are beyond the subject itself and have the function of involving or engaging the audience are generally known as metadiscourse (Hyland 2005).

The term 'metadiscourse' was coined by Zelig Harris in 1959 (Deroey 2013: 15) referring to discourse which guides the audience's perception of a text. In the English for Academic Purposes (EAP) area, metadiscourse is generally regarded as "discourse about discourse" (Vande Kopple 1985:83). Although its concept has been developed considerably (see Ädel 2006; Ädel and Mauranten 2010; Hyland 2005; 2017), scholars so far have not reached an agreement on how metadiscourse should be classified; this reflects differences in their understanding of what constitutes metadiscourse.

## **1.2 The development of classifications of metadiscourse in academic writing**

Vande Kopple (1985) first proposed his taxonomy for metadiscourse (see Appendix I) as a development of Lautamatti (1978) and Williams (1981), and

most following taxonomies were based on his taxonomy. Vande Kopple's classification system consists of two main categories: textual metadiscourse and interpersonal metadiscourse. In textual metadiscourse, there are two subcategories: text connectives (e.g. *first, next, with regard to*), code glosses (e.g. *so-called*). In the interpersonal metadiscourse category, there are five subcategories: illocution markers (e.g. *to conclude, I hypothesize, to sum up*), validity markers (e.g. *perhaps, undoubtedly, according to Einstein*), narrators (e.g. *according to Smith*), attitude markers (e.g. *unfortunately, interestingly, I wish that*), and commentaries (e.g. *you will certainly agree that*). The taxonomy was employed in many following studies (e.g. Crismore and Farnsworth 1989; 1990; Intaraprawat and Steffensen 1995; Cheng and Steffensen 1996). However, there is vagueness and functional overlap in the classification system, which makes it difficult to use in practice (Hyland 2005). It can be noticed from the examples that in both the narrator and validity subcategories, there is "according to someone", for example. This makes it difficult for researchers to categorize metadiscourse resources. The obvious problem was solved by Vande Kopple (2002) himself, when he replaced validity markers with epistemology markers and included narrators within this subcategory. Validity markers and illocution markers may also both include items that express the writer's commitment, and it is not very clear what attitude markers and commentaries include, although the examples given above, suggest that attitude markers (e.g. *unfortunately*) tend to indicate writers' commentary on a proposition.

Crismore, Markkannen, and Steffensen (1993) refined Vande Kopple's model and proposed their own classification of metadiscourse (see Appendix II). This also contains two main categories: textual metadiscourse and interpersonal metadiscourse. Compared with Vande Kopple's model, however, the first category, textual metadiscourse, is divided into two subcategories: textual markers and interpretive markers. Although Crismore et al. changed and reorganized Vande Kopple's categories, some problems in their classification remained (Hyland 2005). Firstly, there seems no cogent reason to divide textual

metadiscourse into textual markers and interpretive markers. And there seems to be a problem in the taxonomy of reminders in the categorization of textual markers and announcements in interpretive markers, because they basically have the same function but were put into different categories. For example, the linguistic expression “*as we saw in Chapter one*” is treated as a textual marker, but “*in the next section*”, with similar function, is put into the interpretive marker, category.

Also based on Vande Kopple’s (1985) model, Hyland (2005) proposed his categorization of metadiscourse (see Appendix III), which was a development of his earlier classification system (e.g. 1998a; 2000; 2001). There are two main categories in his model: interactive and interactional. Within interactive metadiscourse there are five subcategories: transitions (e.g. *in addition, but, thus, and*), frame markers (*finally, to conclude, my purpose is*), endophoric markers (e.g. *noted above, see Fig; in section 2*), evidentials (e.g. *according to X, Z states*), and code glosses (e.g. *namely, e.g., such as, in other words*). Within interactional metadiscourse, there are another five subcategories: hedges (e.g. *might, perhaps, possible*), boosters (e.g. *in fact, definitely, it is clear that*), attitude markers (e.g. *unfortunately, I agree, surprisingly*), self mentions (e.g. *I, we, my, me*) and engagement markers (e.g. *consider, note, you can see that*). In contrast to previous classification systems, he adopted Thompson and Thetela’s (1995) distinction between interactive and interactional resources and regarded them as two main categories. Here interactive metadiscourse has the function of helping to guide the reader through the text, while interactional metadiscourse has the function of involving the reader in the text (Hyland 2005: 49). In addition, Hyland’s focus seems to be wider because his model includes stance and engagement features (Hyland 2001).

Unlike the above three Systemic Functional Grammar (SFG)-inspired models, which were influenced by Halliday’s (1994) three-part model of the

metafunctions of language, Ädel's (2006: 38) model (see Appendix IV) includes two main categories of metadiscourse: metatext and writer-reader interaction. Metatext can be impersonal (e.g. *thirdly, in other words, the question is*) and personal. Within personal metatext there are three subcategories: participant-oriented (e.g. *as we have seen, in our discussion above*), writer-oriented (e.g. *as I have shown, my conclusion is that*) and reader-oriented (e.g. *as you have seen*). The other main category, writer-reader interaction, which includes two subcategories: participant-oriented (e.g. *I know you think that, correct me if I'm wrong, but...*) and reader-oriented (e.g. *now, dear reader, you probably..., does this sound...to you?*). Metatext primarily spells out the writer's discourse acts, or refers to aspects of the text itself, while writer-reader interaction mainly expresses writer-reader relations (Ädel 2006: 36-37). Ädel's model is obviously different from the previous ones, and seems to solve the earlier problems of vagueness and functional overlap. However, there might be a new vagueness in her category of impersonal metatext. In her model, metadiscourse devices can only fall into two categories, i.e. impersonal and personal, although personal metadiscourse can be classed as metatext or writer-reader interaction. All personal metadiscourse includes personal pronouns or possessive forms, e.g. *I, you, and my*, and all other metadiscourse devices fall into metatext impersonal, which seems to be rather too broad a category.

### **1.3 Issues in the classifications**

Although the conceptualization of metadiscourse has developed considerably in the last a few decades, there is vagueness in its definitions and classifications (see Ädel 2010; Dahl 2004; Hyland 2005; 2010). In the above demonstration of the different metadiscourse models, it can be noted that theorists have different understandings and preferences when they classify metadiscourse items.

The first issue is probably how to distinguish metadiscourse from propositional discourse. Metadiscourse generally refers to "things in the discourse" in contrast

with “things in the world”, namely propositions (Hyland 2005). It appears the metadiscourse resources are the language items if all propositional content is removed. The problem, however, is that the concept of proposition is “under-theorized and rarely elaborated” (Hyland 2005: 38). In some cases, therefore, propositional matters and non-propositional materials cannot be easily distinguished. To demonstrate the vagueness, Hyland gives as an example “A taxonomic scheme such as the one I present below is not just a neutral description of diversity but a theory in itself”. He argues that the “taxonomic scheme” might be propositional or non-propositional discourse because it could refer to a specific example in the text itself or all schemes in the world. Thus, in fact, the vagueness between the two types of discourse increases the difficulty of identifying metadiscourse resources, although this is what theorists and researchers have to do before classifying them.

The second issue is how metadiscourse fulfils textual and interpersonal functions. According to Halliday (1994), language in use fulfils three main metafunctions: ideational, interpersonal and textual.

- The ideational function: the use of language to represent experience and ideas. This roughly corresponds to the notion of propositional content.
- The interpersonal function: the use of language to encode interaction, allowing us to engage with others, to take on roles and to express and understand evaluations and feelings.
- The textual function: the use of language to organize the text itself, coherently relating what is said to the world and to the readers (Halliday 1994 cited in Hyland 2005: 26).

Halliday believes language in use performs the three metafunctions simultaneously, while metadiscourse theorists try to consider textual, interpersonal, and propositional elements as discrete and separable (Hyland 2005: 27). The earlier Vandepol's (1985) and Crismore et al.'s (1993)

models of metadiscourse basically divided metadiscourse resources into textual and interpersonal. They generally believed that metadiscourse fulfils language's textual and interpersonal function. As Vande Kopple (1985: 83) claims, metadiscourse is employed to "help our readers organize, classify, interpret, evaluate, and react" to propositional material. However, Hyland (2005: 49) seems only to stress its interpersonal feature and named his model as "an interpersonal model of metadiscourse". Hyland (2005: 45) argues, "so-called textual metadiscourse is actually another aspect of the interpersonal features of a text" and "all metadiscourse refers to interactions between the writer and reader". He therefore did not adopt the name of "textual" as one of his main categories, but instead adopted the names used by Thompson and Thetela (1995), "interactive" and "interactional", as his two main categories, distinguishing two main types of interaction. Here *interactive* resources are about "the way writers signal the arrangement of their texts based on their appreciation of the reader's likely knowledge and understandings" while *interactional* resources are "more personal and involve the reader collaboratively in the development of the text" (Hyland 2005: 43-44).

Ädel and Mauranen (2010: 2-3) admit there are advantages to Hyland's method because "the retrieval can be highly automatised, which makes it possible to compare frequency and distribution patterns across relatively large bodies of data". This allows researchers to make quick comparisons in terms of genres and registers. Ädel and Mauranen, however, continue to argue that Hyland's approach is a "thin" one at the "quantitative" end, and the results are "superficial". They claim that in the "thin" approach, researchers rely heavily on linguistic forms because they retrieve all occurrences of a set of pre-defined lexical items, and then they merely compare languages based on the quantitative results. However, Hyland (2017: 18) argues that Ädel and Mauranen's so-called "thick" and "qualitative" approach "also seems to involve counting features", although it "sees the metadiscursive unit as larger than the search term (e.g. we would like to suggest; it is possible that)". Hyland continues to claim that in fact the quantitative exploration of the occurrences

and distribution of some potential metadiscourse items is merely a starting point, and that it is essential to examine the potential metadiscourse items in context. Through reading concordance lines, we can manually exclude the items which do not function as metadiscourse, and identify lexico-grammatical co-occurrence patterns. Therefore, Hyland's approach, in fact, is not "superficial" and also includes qualitative operations.

In short, the debate suggests that the understanding of the concepts such as "textual" and "interpersonal" varies from one metadiscourse theorists to another, with the result that their classification systems differ.

## **1.4 Hyland's interpersonal model of metadiscourse**

This study has adopted Hyland's model because it considerably developed the concept of metadiscourse and seems to be a better classification system compared with other models. First of all, Hyland (2005: 37) presents a clear definition:

Metadiscourse is the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community.

Hyland's definition stresses the interpersonal function of metadiscourse, whereas it seems that the previous explanations of metadiscourse did not emphasise this feature. Vande Kopple (1983: 83) regards metadiscourse as "discourse about discourse or communication about communication" and points out that discourses have two levels:

On one level we supply information about the subject of our text. On this level, we expand propositional content. On the other level, the level of

metadiscourse, we do not add propositional material but help our reader organize, classify, interpret, evaluate, and react to such material.

He believes metadiscourse items do not expand the propositional information of the text. Crismore et al. (1993: 40) later defined metadiscourse as “linguistic material in texts, written or spoken, which does not add anything to the propositional content but that is intended to help the listener or reader organize, interpret and evaluate the information given”. In contrast, Hyland (2005: 37) regards metadiscourse as a “system of meanings”, which is reflected in the following key principles (Hyland and Tse, 2004: 159).

Firstly, metadiscourse is distinct from propositional aspects of discourse. Hyland (2005) clearly explains the complicated relationship between the two types of discourse, which plays different roles: propositional discourse is concerned with things in the world, while metadiscourse items are concerned with the text itself. However, they “occur together in text, often in the same sentences, and both elements are crucial to coherence and meaning”. Metadiscourse is not “glue” to stick the propositional elements together, but it is “a crucial element of its meaning”, which plays an important part in taking into account “readers’ needs, understandings, existing knowledge, inter-textual experiences and relative status” (Hyland 2005: 40-41).

The second principle of Hyland’s model is that metadiscourse refers to aspects of the text that embody writer-reader interactions (Hyland and Tse 2004: 159). The key point in this principle is that all metadiscourse items are interpersonal. Other metadiscourse analysts such as Vande Kopple (1983) and Crismore et al. (1993) claim that metadiscourse items such as conjuncts and adverbials perform textual functions and they are “straightforward and unproblematic” textual markers (Crismore et. al, 1993: 48). However, Hyland (2005) argues that the so-called “textual” metadiscourse devices function more than textually, and writers employ them mainly to meet community expectations and guide the readers as a writer-reader interaction. Textual metadiscourse, therefore,

performs interpersonal functions in a text. This is the reason why Hyland employed Thompson and Thetela's (1995) two types of interaction as main categories of his model.

The third principle is that metadiscourse distinguishes external and internal relations. As discussed in the last principle, so-called textual metadiscourse resources can perform both propositional and interpersonal functions depending on their contexts. Then there is a problem of which function is primary, which determines whether so-called textual items are metadiscourse or not. For example, conjunctions are typical textual items according to Martin and Rose (2003), but they can function both externally and internally. External items are used to connect activities in the world outside the text, while internal items are used to connect part of the text itself. In other words, external items function as propositional resources, while internal items function as metadiscourse resources. This can be regarded as the main criterion to identify metadiscourse. Hyland (2005) used this external and internal perspective to distinguish not only connective items, such as temporal connectors and sequencing devices, but also modality.

## **1.5 The aim and structure of the thesis**

As presented in the above sections, metadiscourse plays important roles in writer-reader interaction and assists the writer's argumentation in a text. In addition, it is an open-ended set of language items (Hyland 2005). The identification of the specific items and the way they are used by writers is therefore important, and should be helpful for the teaching and learning of writing.

Generally, previous studies have shown that the use of metadiscourse in academic writing varies across first languages and cultures (Ädel and Mauranen 2010; Hyland 2017; Leedham 2015). Chinese students are the

largest international student group in the UK (Leedham 2015), so an investigation of their academic writing should lead to useful findings. This study aims to find out how Chinese students use transition markers in their academic writing in English through a comparison with English students' writing. It is expected that through the comparison between the two groups of students, the features used by both groups of students can be identified, leading to the development of teaching techniques and strategies which would be helpful both for English students and for Chinese students preparing to study in the UK.

This study focuses on transition markers, one of the main categories in Hyland's model. Chapter 2 will give a review of studies of Chinese student academic writing in English. In Chapter 3, the research method will be provided to show how transition markers will be identified and analyzed. Then Chapter 4 will show the overall findings. The specific findings for transitions will be presented and discussed in the following three chapters, i.e. Chapters 5, 6, and 7. Finally, a conclusion chapter will provide a summary of the study and discuss how the findings can be put into practice in the teaching of writing.

## **Chapter 2 Review of studies on Chinese student academic writing in English**

The introduction chapter introduced the concept of metadiscourse and the importance of metadiscourse in writing. A number of theorists have conducted research in this field (see Ädel, 2006; Crismore et al 1993; Hyland 2005), and the concept and their classification systems have been employed widely. Since Chinese students are the largest international student group in the UK, studies revealing the features in their writing are important and helpful for them to prepare for study in the UK. This chapter explores recent studies to metadiscourse, especially in academic writing, leading to a focus on Chinese and English student writing.

### **2.1 Chinese student academic writing in English**

This study is based on the British Academic Written English (BAWE) corpus and the focus is on Chinese and English student academic writing. The BAWE corpus contains 2896 proficient student assignments in English, 1953 of which were written by L1 (first language) speakers of English and 245 by L1 speakers of Chinese. The texts in the corpus were collected from four UK universities across levels, disciplines, and genre families (Alsop and Nesi 2009; Nesi and Gardner 2012). Details of the BAWE corpus will be described in the next chapter. In this chapter studies of Chinese students' academic writing based on BAWE corpus data are discussed, to outline some of the general characteristics of Chinese students' academic writing.

A number of studies focus on the similarities and differences between L1 Chinese student and L1 English student writing in English. Lee and Chen (2009) conducted a contrastive study investigating 78 Chinese undergraduate

dissertations comprising 407,960 words, in which they concentrated on characteristically problematic areas of student academic writing. In order to discover language learners' problems with some common words and phrases, a multiple-comparison approach was adopted. Three discipline-matched corpora were built, i.e. the Chinese Academic Written English (CAWE) corpus, the BAWE corpus, and the Expert Journal Articles (EXJA) corpus. The CAWE corpus consisted of dissertations written by Chinese undergraduates majoring in English linguistics/applied linguistics. Keyword analysis, a corpus-driven and bottom-up method was employed to identify words which were potentially wrongly used or problematic. It was found that the most significantly overused words and phrases in the CAWE corpus were function words (e.g., *can, the, some, according to*) and common words (e.g., *make, besides, get, help*). Here "overuse" was explained by Chen and Lee (2009: 284) as significantly more frequent compared to a reference/comparison corpus. Lee and Chen present some reasons for the overuse of these items by Chinese students. For example, the greater use of the function word *the* is because Chinese students lack of "the art of using plural nouns for making general statements (e.g. *Teachers should...* instead of *The teachers should*)" (Lee and Chen 2009: 287). The greater use of the word *make* in Chinese students' writing (e.g. *make the students use*) is because they are influenced by their first language. Lee and Chen (2009: 288) claim Chinese learners relate *make* to "令 (lìng) " or "使 (shǐ) " in Chinese, "which are neutral in meaning and used more liberally and productively in Chinese causative construction than MAKE in English". In short, Lee and Chen (2009) presented a number of problems in Chinese students' academic writing, and they also employed a part of English students' data in the BAWE corpus, which is closely related to the present study investigating Chinese and English students' writing in the BAWE corpus.

Chen and Baker (2010) also used the BAWE corpus and investigated Chinese student writing. They carried out a comparative study on lexical bundles in texts by three groups of writers, from the Freiburg-Lancaster-Oslo/Bergen (FLOB)

corpus (164, 742 words) written by expert writers, and the BAWE corpus written by L1 Chinese students (146,872 words) and L1 English students (155,781 words). The study followed the taxonomy of lexical bundles in the Longman Spoken and Written English (LSWE) corpus. Investigation of three broad structures (i.e. “NP-based”, “PP-based”, and “VP-based”), revealed that the L1 Chinese students made no use of NPf bundles (e.g. *the extent to which, the way in which*) that were part of relative clauses, whereas the expert writers and the L1 English students used them frequently. Moreover, nominal or prepositional expressions and “Passive verb + prepositional phrases” (e.g., *be taken into account*) were not used frequently by the L1 Chinese students. In addition, a functional comparison was made between the texts written by the three different groups of writers. The L1 Chinese students were found to employ twice as many discourse organizers (e.g. *on the other hand, at the same time*) than the expert writers, but they utilized limited hedging devices (e.g., *be likely to, it could be argued that*) to qualify their statements. To sum up, the texts in the BAWE corpus were investigated from another perspective (i.e. lexical bundles), and more features of Chinese student writing were identified; the frequent use of discourse organizers, e.g. *on the other hand*, is relevant to my examination of metadiscourse in Chinese student writing.

Li and Wharton (2012), building on the earlier research by Li (2010), conducted a comparative study of metadiscourse in Chinese undergraduate student writing but in different courses and stages. The writers investigated in the study were taught at Bohai University in China and subsequently at Warwick University in the UK for two years respectively, and their final assignments were collected in the final year of each stage. After comparing 80 texts completed in the two different educational contexts, it was found that the Bohai-based writers frequently employed strong assertions (e.g. *we must, you should*) to engage with target readers and used hedges less frequently than the Warwick-based writers, which is consistent with the finding of Chen and Baker’s (2010) study. The results suggest that the UK educational context had a strong effect on the use of metadiscourse in students’ academic writing. In Li’s (2010) study, some

L1 English students' texts (i.e. literary criticism essays) from the BAWE corpus were also involved. This inspired me to find out how proficient Chinese and English students in the BAWE corpus employ metadiscourse in their writing.

Leedham (2012) investigated Chinese student writing in the BAWE corpus. The texts used in the study were from four Chinese undergraduate students in UK Higher Education who had undertaken their secondary education in China. The subcorpus consisted of 29 texts (48,367 words), submitting by the four students from years 1, 2 and year 3 of undergraduate study. Discipline-matched reference subcorpora were also built for the study. The results suggest that Chinese students used more particular connectors (e.g. *on the other hand*), which is consistent with the findings of Chen and Baker's (2010) study. This study revealed some features of proficient Chinese student writing in the BAWE corpus and also involved the examination of some metadiscourse items, e.g. *on the other hand*, which is related to my investigation of transitions.

Leedham (2015) conducted a further investigation of Chinese undergraduate student writing using the BAWE corpus. More distinguishing characteristics of Chinese students' academic writing were revealed. Firstly, Chinese students' texts were significantly shorter with lower mean sentence length compared with their British counterparts, partly because of the greater use of visuals and lists. Then, there were overused connectors in Chinese students' assignments, such as *on the other hand* and *in the long run*, and they tended to be used sentence-initially, a finding which was in broad agreement with previous studies of Chinese writers (e.g. Lee and Chen 2009; Cobb 2003; Granger 1998; Hinkel 2003). Leedham suggests that the higher use of such particular linguistic features for Chinese students may have been because they were familiar with these items and felt "safe" to use them. Another reason might be the influence of textbooks that provide lists of connectors without distinguishing their use in different genres, as Milton (1999) claims. Chinese students also made greater of informal language, of the kind described as "speech-like" or "oral tone" in

previous studies (e.g. Field and Yip 1992; Hinkel 2003). However, according to Leedham (2015: 135), the difference in use of informal language between L1 Chinese students and L1 English students was not as obvious as that claimed in the previous literature, and the range of the items were limited (e.g. *lots (of)*, *a bit of*, *besides*, *what's more* and *last but not least*). She suggests the reason why Chinese students used informal language frequently might be that language teachers did not discriminate between spoken and written registers.

In addition, Chinese students preferred the plural forms of the first person pronouns, while the use of first person singular was common in L1 English student writing (Leedham 2015). In the Chinese student writing, there was little reflective writing, which was written in a personal and reflective style. Leedham suggests the reason might be that Chinese students were not familiar with this register where the first person singular indicates a high degree authorial involvement. The last distinguishing characteristic for Chinese students was the higher use of figures, tables, formulae and lists. The use of these visuals and lists was regarded as a compensatory strategy, and it was argued that they were useful to present information clearly and concisely, as required of academic writing. In short, in this study, Leedham investigated Chinese undergraduate student writing and used the BAWE corpus. Findings such as the overuse of connectors may contribute more to our understanding about their use of metadiscourse.

To sum up, this section reviews some previous studies of Chinese student academic writing in English, especially those employing the BAWE corpus as a source of data. These studies contributed to revealing the characteristics of Chinese student writing and provided a general picture of its linguistic features. The next section will review studies of the use of metadiscourse in academic writing. Then further features of academic writing and the approaches to identifying these features will be presented.

## **2.2 Metadiscourse-related studies**

### **2.2.1 Metadiscourse, genre, register, and discipline**

Genres are abstract, socially recognized ways of using language (Hyland 2002: 114). Genre analysis is helpful for grouping texts since different genres have different key linguistic and rhetorical features, which represent “how writers typically use language to respond to recurring situations” (Hyland 2005: 87).

The use of metadiscourse varies across genres. Hyland (1998b, 2000, 2005) investigated the use of metadiscourse in research articles, popular science articles and textbooks, and comparisons were subsequently made between these genres. It was found that metadiscourse occurred frequently in research articles (66.2 per 1000 words) and textbooks (68.5 per 1000 words), and did not occur frequently in popular science articles. Hyland suggests that the less frequent use of metadiscourse in popular sciences articles might be because they do not heavily rely on internal discourse markers to show the relationships between propositions, and focus more frequently on the external phenomena to help the non-specialist audience to understand real-world relationships. In contrast, metadiscourse items are made use of most frequently in textbooks to guide students through the new ideas and information they are learning.

In addition to “genre”, “register” is another term which is used to refer to text categories distinguished in corpora (Biber 2010: 241). It was defined by Halliday and Hasan (1989: 38-39) as “a configuration of meanings that are typically associated with a particular situational configuration of field, mode, and tenor”. Flowerdew (2013: 138) points out that both registers and genres are associated with particular fields and activity or professions. Genre and register can be differentiated, and the distinctions have been debated within and across schools of linguistics. For instance, within Systemic Functional Linguistics, Martin and the ‘Sydney School’ of genre analysis treat them as two distinct levels of analysis, which Halliday and Hasan do not. Hyland and Swales tend to

focus on the analysis of genres such as research articles, where Biber and Conrad tend to focus on the analysis of academic vs fiction vs conversational registers. Their theories and methods differ, but they all involve investigating how language is used in context in groups of similar texts. This study will adopt the Gardner and Nesi (2013) classification of genre families for the BAWE corpus, and will differentiate the registers of different disciplines, and thus recognizes that findings of both genre and register analysis can shed light on the nature of metadiscourse across different types of text.

Conrad and Biber (2000) investigated stance adverbials across three registers, i.e. conversation, academic writing and news reportage. The adverbials investigated were divided into the three semantic classes of epistemic stance, attitudinal stance and style stance. Epistemic stance adverbials include metadiscourse devices, such as hedges (e.g. *probably*), boosters (e.g. *in fact*), and evidentials (e.g. *according to*); the less common attitudinal and style stance adverbials include metadiscourse devices, such as attitude markers (e.g. *unfortunately*). The study revealed that many more metadiscourse items occurred in conversation than in academic writing and news reportage, Conrad and Biber suggest that this was probably because conversational partners were personally involved with their message. This study reported that more metadiscourse items occurred more frequently in academic prose than in newspapers. The metadiscourse tended to occur at initial or pre-verbal positions in academic writing and newspaper reportage. They suggest the reason for this might be that the initial and pre-verbal positions were helpful for the readers to understand the texts. Such positions were user-friendly because “they provide the author’s framing for a proposition before actually presenting the proposition” (Conrad and Biber 2000: 71). In addition, items in the initial position serve a function of connection. For instance, the metadiscourse items such as *in fact* and *in short* occurring sentence-initially serve not only to indicate the nature of the coming clause but also connect to the previous discourse. The investigation of the distribution and clause position of metadiscourse resources writing employed in this study, therefore, appears to be a good way to identify

the features of different registers. It is expected to identify features of metadiscourse in Chinese and English student writing in the similar ways of analysing the distribution and clause position of metadiscourse.

Transitions as one category of metadiscourse were investigated across registers by Liu (2008). The data in this study were from the BNC (the British National Corpus), and were across the five registers, i.e. Speaking, Academic, Fiction, News, and Other (composed of the Non-fiction, which include writings on commerce, medicine, religion, etc.). It was found that the overall frequency of transition use was, in decreasing order: Academic > Speaking > Others > Fiction > News. This suggests that transitions occur most frequently in the academic writing. The transition identified in academic writing included additive items (3.42 per 1000 words), adversative items (3.028 per 1000 words), and causal / resultative items (2.422 per 1000 words). It was noted that there were a few items (e.g. *however*) that had extremely high overall frequency, but the frequency varied across these registers. For example, the item *however* had substantially higher frequency in academic writing (1.217 per 1000 words) than in speaking (0.089 per 1000 words). The difference in the frequency of *however* in academic and speaking texts is generally in line with Biber (1999: 887), in which study *however* occurs around 1.100 per 1000 words in academic prose, and less than 0.05 per 1000 words in conversation. In short, this study shows that there are distinguishing features of the use of transitions across different text categories, which we might also expect to find in Chinese and English student writing in the BAWE corpus. In addition, student writing is a text category which is different from those in Liu's study, so an exploration of the use of transitions in student writing might contribute to our general understanding of the use of transitions.

In addition to from the genre and register perspectives, investigation into the use of metadiscourse in disciplines is another important research area.

Transitions were investigated across disciplines by Peacock (2010), using 320 published research articles across four science disciplines and four non-science

disciplines. It was found that the transitions occurred much less frequently in science disciplines (e.g. Chemistry and Material Science) than in non-science disciplines (Language and Linguistics, and Management), because the authors had different ways in developing claims. In science disciplines, they developed their writing in a more narrative and descriptive style, while in non-science disciplines, they interacted with readers using transitions to show connections between ideas, claims and facts. It was noted that the item *however* was the most frequent item, with a frequency of 1.200 per 1000 words, which was slightly higher than in Biber et al. (1999), i.e. 1.100 per 1000 words. The variation of the use of transitions across disciplines in research articles shows that it is worth investigating this linguistic feature in student writing, and there might be similar variation in student writing across disciplines. Since students are not as experienced as expert writers, it is hypothesized that they may not feel the same need to use metadiscourse to interact with readers.

Compared with the studies reviewed above, more categories of metadiscourse were investigated across disciplines and across paradigms by Cao and Hu (2014). They examined interactive metadiscourse, one of the two main categories of Hyland's (2005) model. There are five subcategories of interactive metadiscourse, i.e. Code glosses, Transition markers, Frame markers, Endophoric markers, and Evidential markers. Cao and Hu investigated them in 120 research articles across three disciplines of Applied Linguistics, Education, and Psychology, and across two paradigms of quantitative and qualitative research. Generally, it was found that there were marked differences in terms of exemplifiers, comparative transitions, linear references and integral citations across disciplines. Moreover, there were differences in terms of the incidence of reformulators, comparative and inferential transitions, sequencers, and non-linear references in the two paradigms.

As for transitions, it was found that the comparative transition markers were used significantly more in the discipline of Applied Linguistics than in Psychology. For the comparative transitions, the majority of items were

contrasts which showed the contrastive relations. Cao and Hu explained this significantly difference with reference to knowledge-knower structures described by Maton (2007). They argued that Applied Linguistics is more knower-oriented, while Psychology is more knowledge-oriented. One of characteristics of knower-oriented disciplines is that they emphasise difference rather than similarity; this explained why significantly more contrasts occurred in Applied Linguistics to “emphasize the knower’s distinct voice, align or dis-align readers with alternative positions, and create knowledge claims in the knower code” (Cao and Hu 2014: 28). It is noted that this study adopted Hyland’s (2005) metadiscourse model, and provided the findings of transitions in this model.

### **2.2.2 Metadiscourse and culture**

Culture has a significant influence on the content and organization of our writing and our communication to different contexts (Hyland 2005). Crismore et al. (1993) conducted a comparative study aimed at investigating culture variations in the use of metadiscourse. They compared the academic writing produced in Finnish by Finnish students and in English by American students. The study suggested there were cross-cultural differences in the amount and types of metadiscourse resources. U.S. students used less metadiscourse than Finnish students, especially hedges, text markers, and attitude markers. As to the comparison between English and Chinese, Bloch and Chi (1995) conducted a study to compare citation in English and Chinese academic discourse. Here citation is related to the use of evidential markers (one type of metadiscourse, e.g. according to X; Z states). It was found that English writers tended to show the novelty of the writer’s position, while Chinese writers were more likely to be uncritical and valued transmission rather than showing creativity, probably because they were influenced by the Confucian value of harmony. These two studies showed the general variation in the use of metadiscourse between writers from different cultures.

The following two studies compared the use of metadiscourse in academic writing by English speakers and Persian speakers. Bahrami (2012) investigated the frequency and distribution of transition markers in 45 introduction sections of research articles in the field of applied linguistics. The data comprised 15 articles by native writers of English (NE), 15 by native Iranian writing in English (NNE), 15 by native Iranians writing in Persian (NP). All the articles met three collection criteria: genre, subject and year of publication. The results suggested that NP writers used addition and consequence markers more frequently, while NE writers used comparison markers more frequently. Generally, articles in Persian employed more transition markers compared with those in English.

Instead of investigating interactive metadiscourse, Yazdani, Sharifi, and Elyassi (2014) carried out research investigating interactional metadiscourse (i.e. hedges, boosters, attitude markers, self-mention, and engagement markers), also adopting Hyland's (2005) classification system. They randomly collected 30 English and Persian news articles (15 from each) about the 9/11 event in 2001. There were similarities between the Persian and English articles in that three types of interactional metadiscourse items, hedges, boosters and attitude markers occurred more frequently than other items. However, the American writers generally used more interactional markers. The most considerable difference was that the American writers used self-mention and engagement markers, whereas the Iranian writers did not use these two types of metadiscourse markers due to their different writing style in formal contexts. Yazdani et al. (2014) claim that the differences may be caused by the fact that Iranian writers are generally trained to use a third person pronoun and passive structure in order to avoid self-mentioning in their text. English writers, however, do not have the convention, so they feel free to be a part of the text they are writing. In short, the two studies adopted Hyland's (2005) model to show that there were differences in the use of interactional metadiscourse across the languages of English and Persian.

Regional culture also has influence on academic writing. Kruse and Chitez (2012) investigated university genres at Swiss universities from three different language regions (Italian, French, and German). It was found that while there were similarities in genre use, the universities placed different emphases on student writing. At the Italian speaking university, students had to practice expressing academic knowledge in a personal voice, while at the French speaking university, “the personal should not appear in the text”, and the students had to “use voice of the discursive genres”. At the German speaking university, students had to find a balance between the academic and the personal voice. This study showed the different features of academic writing across languages used within the same country.

The following two studies show the influence of national culture on writers who share the same first language. Ädel (2008) compared the use of metadiscourse by American and British writers. She collected writing materials from the LOC-NESS (the Louvain Corpus of Native English Essays; Granger 1993) written by US and UK university students. It was found that there were notable differences in the writing between the two groups of writers. The American students generally employed metadiscourse more frequently than their English counterparts, using personal metadiscourse twice as frequently as the English writers. Moreover, the American writers “made more explicit references to the structure or the wording of their essays than the British writers”, while English writers did not show much metalinguistic awareness (Ädel 2008: 55). She suggests that the differences in the use of metadiscourse by the two groups of students show that conventions differ across varieties of English.

Ädel’s (2008) findings were supported by Nesi, Matheson and Basturkmen’s (2017) study. They compared three varieties of English, from New Zealand, USA, and the UK in undergraduate literature essays from three corpora: the Academic Writing at Auckland (AWA) corpus, the British Academic Written

English (BAWE) corpus, and the Michigan Corpus of Upper-level Student Papers (MICUSP). Notable differences were found in the writing of the three groups of students. American student writing was found to be easier to read, and more accessible to lower level readers. Essays in MICUSP contained more interactive features than in AWA and BAWE. For example, 1<sup>st</sup> person pronouns in MICUSP essays occurred approximately three times more often, and 2<sup>nd</sup> person pronouns occurred twice as often as in AWA essays (Nesi et al. 2017: 33). The evident differences in the three varieties of English indicated might be caused by differences in national culture. Nesi et al. claim that the requirements of the UK and New Zealand undergraduate writing were close to postgraduate writing, while the requirements of the US undergraduate writing might be lower. This may be reflected by the fact that the USA has a higher percentage of the population for the access of tertiary education, and undergraduates are generally encouraged to express their critical views in their academic writing before acquiring all the writing skills. In short, the two studies reviewed above showed the different use of metadiscourse in varieties of English due to the differences in national culture. This issue is noteworthy because the present study involves the writing influenced by different cultures.

To sum up, this section reviews the studies on the difference of academic writing by culture. The use of metadiscourse in academic writing may vary from one language to another regionally and nationally, or in the varieties of the same language. Thus, the culture issue should be taken into account seriously in the present study since the Chinese and English writers share striking different cultures.

### **2.2.3 Studies of metadiscourse use by L1 Chinese and L1 English writers**

The previous sections reviewed some general features of Chinese students' academic writing and ways in which the use of metadiscourse is influenced by

genre, discipline, and culture. This section will review how these issues affect the use of metadiscourse by Chinese and English writers in their academic writing. Since the present study focuses on student writing, this section will primarily review previous studies of student writing, at doctoral, masters, undergraduate level, as well as writing by high school students for the General Certificate of Education (GCE) A level. It is hoped that through the review of these studies, a general picture of how these studies were conducted and how students use metadiscourse will be represented.

At the doctoral level, Lei (2012) examined 20 Chinese dissertations in the discipline of Applied Linguistics and compared the use of transitions with a control corpus of 120 journal papers in Applied Linguistics. It was found that Chinese doctoral students used transitions more frequently than professional writers. Furthermore, Chinese writers have preference for a limited set of transitions. Overused (e.g. *therefore*), underused (e.g. *however*), and misused items (e.g. *besides* and *actually*) were identified in the Chinese student writing. Adversative items were most problematic in the student writing. It was found that generally Chinese doctoral student writers used substantially fewer adversative adverbials than professional writers (2.568 vs. 3.016 per 1000 words), accounting for nearly half of the underused linking adverbials in the Chinese writers' texts. These items were *however*, *despite this/that*, *in fact*, *yet*, *in/by contrast*, *nonetheless*, *rather*, *of course*, *at the same time*, *nevertheless*, and *conversely*. The contrastive adverbial *however* was underused most (1.127 vs. 1.376 per 1000 words). Lei claims that there are two reasons for the underuse of adversative adverbials by Chinese writers. One of these reasons is that students avoid using formal linking adverbials; the less formal adversative adverbial *actually* was overused in their writing. The other reason is that adversative adverbials are difficult for unskilled Chinese student writers to use.

It is noted that apart from the above study, other studies (see Lee and Chen 2009; Leedham 2015) have shown "overuse/underuse" items by Chinese

writers. The concepts of “overuse/underuse”, however, seem to imply negative evaluation of the writing and they are inappropriate to describe the writing on the basis of statistics. I argue that the terms overuse/underuse should only be used when statistics are supported by qualitative analysis. Moreover, the results of “overuse/underuse” were normally from the comparison between different genres or registers. For example, Lei (2012) and Lee and Chen (2009) compared Chinese student writing with published research articles. In fact, student writing and research articles vary in terms audiences and word count, which may affect the amount and deployment of interpersonal items in a text. In addition, the educational level of students is another factor which may affect the use of these items. For example, Geng and Wharton (2016) compared Chinese and English PhD students’ writing in Applied Linguistics in English. It was found that there was no significant difference for the use of Engagement, one main category of interpersonal language, and both groups of student had similar rhetorical behaviour in using interpersonal language. This may suggest that “overuse/underuse” may not happen in high educational level of Chinese writers, and the generalized impression of “overuse/underuse” items by Chinese students left by previous studies may not appropriate.

At the level of Masters students, Chen (2006) conducted a similar examination, looking at 23 texts contributed by 10 Taiwanese in MA TESOL students. Compared with the dissertations examined by Lei (2012), the texts in this study belonged to five different genres, i.e. diary studies, literature reviews, research proposals, research articles and pedagogical "how-to" papers. The word-based results showed that the Chinese students used conjunctive adverbials (CAs) slightly more frequently than professional writers (7.800 vs. 7.200 per 1000 words), while the sentence-based results showed the Chinese students used CAs slightly less frequently than professional writers (165 vs. 189 per 1000 sentences). Inappropriate uses of certain items (e.g. *besides* and *therefore*) were identified in the Chinese student writing. *However* was the most common CA in both Chinese students’ writing and professional journal articles, but occurred approximately 2.5 times more frequently in the texts of professional

writers than in these of learners (20.6 vs. 50.1 times per 1000 sentences). Specific reasons for these findings were not offered in Chen's study, however.

Milton and Tsang (1993) compiled a large corpus of 800 undergraduate students' assignments (2000 files) and examination scripts (206 files), in order to investigate the characteristics of logical connectors in Chinese students' writing. Three sets of native English speaker texts were collected as reference corpora because none of the available ones were equivalent to the learners' corpus in terms of genre and circumstance (Milton and Tsang 1993:221). The category of adversative connectors was found to have been overused in the Chinese students' writing as compared to published English NS writing. Marked differences in terms of the use of logical connectors were also found in the three native English speakers' corpora. This was believed to be because of such factors as genre and variety of English. Milton and Tsang point out that there must be limitations in any conclusions reached in studies which do not use without well-matched NS corpora, i.e. writing on similar topics by students of the same age.

Hyland and Milton (1997) investigated 900 Chinese students' GCE A level examination scripts in English, and compared them with the scripts written by 770 British counterparts. The data for the study consisted of two corpora, one for Chinese Hong Kong students and the other for British students, each of them comprised 500,000 words. The study examined expressions of doubt and certainty, which are related to the metadiscourse resources of hedges and boosters. The comparison between the two corpora suggested that the Chinese students employed more limited hedges and boosters overall, and had some problems in conveying a precise degree of certainty. The ten most frequently used epistemic modifiers (e.g. *will*, *may*, *think*) accounted for 75% of the total in the L1 Chinese, which was substantially higher than in the L1 English (Hyland and Milton 1999: 189). *Think* occurred four times more frequently and *will* occurred twice more frequently in the L1 Chinese student writing than in the L1 English student writing. However, it is worth noting that hedges occurred much

more frequently in the L1 English writers' texts. For example, *appear* occurred 33 times more often in the NS data, *apparent (ly)* 10 times more, and *perhaps*, *possible* and *about* four times more.

As to the degree of certainty and tentativeness, detailed analysis of the two corpora revealed that the L1 Chinese students' texts contained "firmer assertions, more authoritative tone and stronger writer commitments" (Hyland and Milton 1999: 193). The Chinese students used approximately 60% more certainty markers than the L1 English students, while English learners employed 73% more items expressing probability. Allison (1995) argued that Chinese learners do not moderate their claims sufficiently because they have inadequate linguistic knowledge resulting from different interpretations of equivalent semantic forms. Moreover, Thomas (1983) claims that the problem is due to "sociopragmatic" violations caused by imperfect awareness of appropriate language use. It was found that weaker students with lower scores used certainty markers more frequently than those at higher levels, while high level students employed more probability and possibility devices. The findings suggest that linguistic knowledge to some extent determines how learners can moderate their statements.

Although these studies have offered some characteristics of the use of metadiscourse and methodologies of investigation, the limitations are also worthy of note. One of the biggest problems is that no highly matched-corpora were built for these studies. For example, Lei's (2012) comparison was made between Chinese PhD student writing and professional journal articles, but these two types of writing belong to two different genres and registers. It might also be pointed out that the longer dissertation texts are not a fair comparison with shorter journal articles because writing longer texts may need more consideration of the use of linguistic devices to indicate the relations between arguments, paragraphs, and sections in a text. In addition, the readers for PhD students and journal article writers are different, so the responses to the

potential readers should be different for the two types of texts. The lack of well-matched reference corpora may affect the reliability of the findings, and in order to overcome this limitation, highly-matched corpora will be compiled for the present study.

## **2.3 The research questions**

This study aims to explore the use of metadiscourse by Chinese and English students. I adopt Hyland's (2005: 50) classification system, and focus on the category of transitions in interactive metadiscourse, which is one of the primary categories. The examination will be conducted from the perspective of the frequency of transition markers and how specific items are used, then a comparison will be conducted between Chinese and English students. In addition to finding out the differences as previous studies did, it is assumed that there might be similarities for the use of transition markers across the two groups of students. The similarities may reflect the features of the use of transitions in terms of disciplines, genres, as well as the influence of a certain period of UK-based university study. Thus, I will attempt to find answers to the following five research questions:

RQ 1: What are the similarities and differences in the use of transition markers by Chinese and English student writers?

RQ 2: What are the similarities and differences in the use of transition markers within specific disciplines by Chinese and English student writers?

RQ 3: What are the similarities and differences in the use of transition markers within specific genre families by Chinese and English student writers?

RQ 4: What are the similarities and differences in the use of specific transition items by Chinese and English student writers?

RQ 5: What further patterns of transition use are observed in Chinese and English students' writing?

## Chapter 3 Methodology

This chapter aims to explain the methodology chosen for this study. Firstly, the use of corpora in the study of English for Academic Purposes (EAP) is described, and current academic corpora are introduced, especially the British Academic Written English (BAWE) corpus. Then the compiling process of the Han CH-EN corpus is explained, and the approach to data analysing is described. Finally, the chapter reports on a pilot study, conducted to test the feasibility of the methodology, and on improvements that were made as a result of the pilot study.

### 3.1 Corpus studies in EAP

Corpora are useful tools and are widely employed in linguistic research. The term *corpus* is defined as “a collection of pieces of language text in electronic form, selected according to external criteria to represent, as far as possible, a language or language variety as a source of data for linguistic research” (Sinclair 2004:20). Corpora can be exploited to look at words in context and produce concordances and frequency data (McEnery and Hardie 2012), and we can analyse features like word frequency, collocation, colligation, semantic prosody and semantic preference from the perspective of Corpus Linguistics (Flowerdew 2013). In the field of EAP, corpora can be used to “provide quantitative information about discourse, and to corroborate insights derived from more qualitative studies” (Nesi 2016: 206). Corpora are practical for researchers to explore linguistic features in academic texts and they are also helpful for lecturers and writing tutors in terms of syllabus design and the development of learning materials.

### 3.1.1 Current academic corpora

In the last three decades, a number of corpora of interest to the EAP community have been constructed, and they can be divided into private and publicly accessible corpora (Nesi 2016). Some private corpora are very famous and valuable, such as the TOEFL 2000 Spoken and Written Academic Language (T2K-SWAL) corpus and The Pearson International Corpus of Academic English (PICAIE). However, they are not available to the majority of researchers because of copyright or commercial reasons. Publicly accessible corpora are the only choice for most EAP practitioners.

The largest publicly accessible corpus containing academic writing is the Corpus of Contemporary American English (COCA), which comprises 450 million words and is made up of academic texts, magazines, newspapers etc. (Davis 2011). Although the COCA corpus is the largest academic corpus in the public domain, it is not possible to drill down to specific disciplines or subtypes of academic writing (Nesi 2016: 209). Furthermore, it does not contain student writing.

There are other influential but more specific publicly accessible academic corpora available, including the British Academic Written English (BAWE) corpus (Alsop and Nesi 2009; Nesi and Gardner 2012), the British Academic Spoken English (BASE) corpus (Thompson and Nesi 2001), and their American counterparts, the Michigan Corpus of Upper-level Student Papers (MICUSP) (Römer and Swales 2010) and the Michigan Corpus of Spoken Academic English (MICASE) (Simpson, Briggs, Ovens and Swales 2002). Table 3.1 shows a general comparison between the BAWE corpus and MICUSP corpus in terms of size, number of texts, disciplines, genres, etc.

Table 3.1: General comparison between BAWE and MICUSP

	Country	Words	Texts	Levels	Disciplines	Genres
BAWE	UK	6.5 million	2897	3+1	34	13
MICUSP	USA	2.6 million	829	1+3	16	6

There are similarities between the two corpora. Firstly, both of them take level, discipline, and genre into account. Furthermore, both corpora contain four levels of texts: texts in the BAWE corpus were written by students at three levels of undergraduate study and at one postgraduate level, while texts in the MICUSP corpus were written by students in their final undergraduate year or at three levels of postgraduate study. In addition, the texts in both corpora were written by proficient students. Half of the assignments in the BAWE corpus were awarded distinction (D) (70% or above) and the other half were awarded Merit (M) (60% or above) (Alsop and Nesi 2009), and all texts in the MICUSP are A-graded papers (Römer and Swales 2010).

In spite of having many similarities, the differences between the two corpora are noticeable. Firstly, the BAWE project collected data in UK universities, whereas the MICUSP corpus was collected on USA universities. They might contain considerably different linguistic features because there are generally regional requirements which students must conform to (Nesi 2016). Secondly, the BAWE corpus has almost 4 million words and 2000 texts more than the MICUSP and there are more than twice as many disciplines and genres in the BAWE corpus. Thirdly, the texts in the BAWE corpus were collected from four universities in the UK, including Warwick University, Reading University, Oxford Brookes University and Coventry University, while texts in the MICUSP were only collected from the University of Michigan. Thus, the BAWE corpus seems to have more advantages than the MICUSP corpus in the aspects described above. This study will use the BAWE corpus to explore Chinese students' academic writing, and more details about BAWE will be presented below.

### 3.1.2 The BAWE corpus

As shown in Figure 3.1 and Figure 3.2, the BAWE corpus contains 2897 texts from 2761 assignments written by 1039 students across four levels of study, comprising 6,506,995 words (Alsop and Nesi 2009). The texts are from 34 university disciplines across four disciplinary groupings, that is, Arts and Humanities (AH), Social Sciences (SS), Life Sciences (LS), and Physical Sciences (PS). In the BAWE corpus, 1953 assignments (70.7%) were written by L1 speakers of English and 245 assignments (8.9%) were written by L1 speakers of a variety of Chinese. Moreover, 13 genre families are identified in the texts in the BAWE corpus (Nesi and Gardner 2012).

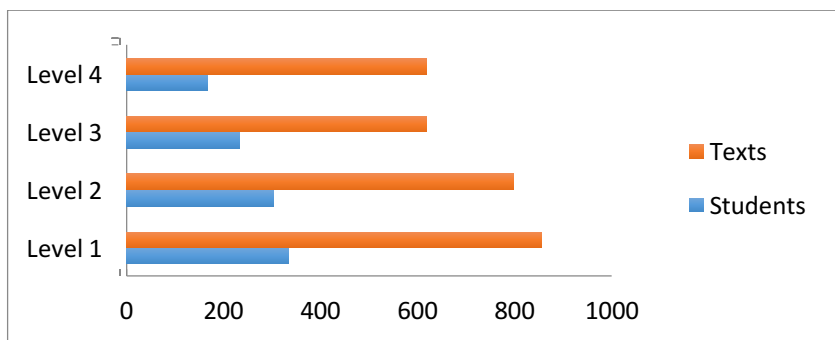


Figure 3.1: Students and texts in Level 1- Level 4

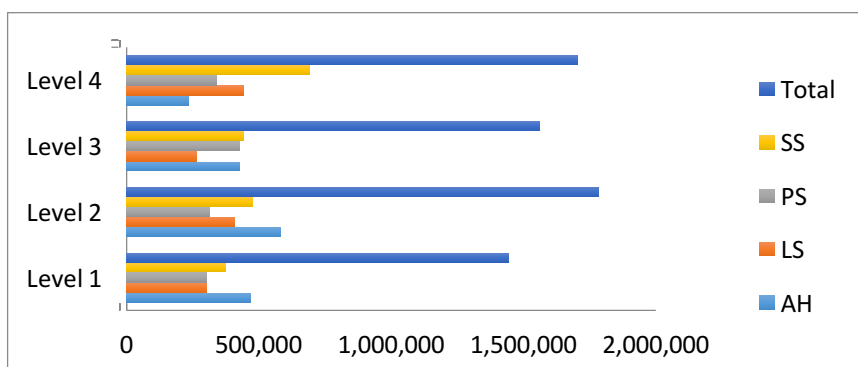


Figure 3.2: Words across discipline groupings and levels

The number of texts at Level 1 and 2 is one quarter more than those in Level 3 and Level 4, and Level one comprises the most students and texts. However, according to Figure 3.2, Level 1 contains the least words. This suggests that texts from students of Level 1 are the shortest compared with other levels. In addition, the number of words of the four disciplinary groups vary across levels. At Masters in the Social Sciences there are more words than at other levels, but at Masters level in the Arts and Humanities there are fewer words than at other levels. At Level 3 there are more words in the Physical Sciences, but fewer words in the Life Sciences than at other levels. Level 2 contains the most words overall than other levels. The texts or words imbalance is caused by many factors, as Alsop and Nesi (2009) point out, including the different cooperativeness in departments and the size of student enrolment, especially at Masters level.

## **3.2 Research methods and procedures**

### **3.2.1 Corpus Design**

Before a corpus is constructed, it is very important to make sure the following issues are clear, as Meyer (2002: 30) points out, “what size it will be, what types of texts will be included in it”. The purpose of this study is to explore the features of metadiscourse in Chinese and English university students’ academic assignments, so the ideal corpus would be one that contains a number of such texts across disciplines and across genres, as well as levels of study. In order to find out how Chinese student writing is different from L1 English learners’ academic writing, we also need texts from native English speakers. As a result, there are L1 Chinese students’ texts in English and L1 English students’ texts in the corpus developed for the present research, which is named the Han CH-EN

corpus<sup>1</sup>. As the corpus is a subset of the BAWE corpus, the ideal Han CH-EN corpus would include two collections of texts, one written by L1 Chinese students and the other written by L1 English students, and the texts would encompass all 34 disciplines and all 13 genre families. In other words, the structure of the corpus could be a matrix like that in the BAWE, i.e. four disciplinary groups (AH, LS, PS, SS) in four levels of study (from first undergraduate year to the Master year), with at least one pair of highly matched texts from L1 Chinese and L1 English across disciplines and levels because a comparison will be conducted between the two collections. The ideal data is as shown in the following table:

Table 3.2: The plan for the Han CH-EN corpus

Disciplinary group	Discipline	Per Level (1-4)	Total
Arts and Humanities	Archaeology	2	8
	Classics	2	8
	Comparative American Studies	2	8
	English	2	8
	History	2	8
	Linguistics	2	8
	Philosophy	2	8
Life Sciences	Agriculture	2	8
	Biological Sciences	2	8

<sup>1</sup> The name of Han CH-EN corpus contains two parts, i.e. Han is the researcher's family name, and CH-EN is the abbreviation of L1 Chinese and L1 English.

	Food Sciences	2	8
	Health	2	8
	Medicine	2	8
	Psychology	2	8
Physical Sciences	Architecture	2	8
	Chemistry	2	8
	Computer Sciences	2	8
	Cybernetics and Electronics Engineering	2	8
	Engineering	2	8
	Mathematics	2	8
	Meteorology	2	8
	Physics	2	8
	Planning	2	8
Social Sciences	Anthropology	2	8
	Business	2	8
	Economics	2	8
	Hospitality, Leisure and Tourism Management	2	8
	Law	2	8
	Politics	2	8
	Publishing	2	8
	Sociology	2	8
Overall Total		240	

### 3.2.2 Legal and ethical issues

There are other issues that should be taken into consideration in the process of corpus construction. Firstly, as McEnery and Hardie (2012) points out, “the most fundamental issue in corpus construction is whether or not you have the legal right to gather and distribute the data you intend to include in your corpus”. The BAWE corpus, as mentioned above, is publicly accessible, so addressing the copyright issue and obtaining the right to use the data seems not to be an issue. What the researcher needs to do is to agree to the *Conditions of Use* listed in the corpus builders’ website, and to apply for approval to get a copy of the corpus from the Oxford Text Archive (see University of Oxford Text Archive 2015). Regarding to the ethical issues faced in this study, I took into account the areas mentioned by McEnery and Hardie (2012: 61), including those issues affecting data contributors, corpus builders, corpus distributors and corpus users. In this research, these ethical issues were dealt with appropriately because the corpus was constructed according to rules listed in the *Conditions of Use* mentioned above, and took full responsibility for dealing with the data. Finally, all the data collected from the BAWE corpus was only used for my research, following all the necessary procedures as defined by the Data Protection Act. In short, the present study has completed the Coventry University Ethical Approval process and this project has been confirmed and approved as Low Risk. The certificate of ethical approval is attached to the thesis.

### 3.2.3 Data collection: development of the Han CH-EN corpus

The Han CH-EN corpus was constructed as a subset of the BAWE corpus to investigate Chinese and English students’ metadiscourse resources in academic writing. The BAWE corpus prioritizes 4 x 4 structure (i.e. four levels of study by four disciplinary groups), while the Han CH-EN corpus prioritizes Chinese and English student writing in these dimensions.

L1 Chinese students include three categories indicated in the BAWE corpus as Chinese Cantonese, Chinese Mandarin, and Chinese unspecified. I argue that there is no big difference between the writing produced by speakers of Mandarin and Cantonese, because Cantonese might be considered a dialect of Chinese since the written language is the same as Mandarin. Only texts coded as OSA (overseas all) were included in the Chinese component; this means that the contributors' entire secondary education was completed overseas rather than in the UK (see Table 3.3).

Table 3.3: The number of texts of Chinese student texts in BAWE

	L1 Chinese Mandarin	L1 Chinese Cantonese	L1 Chinese Unspecified	Total
No. Texts	26	66	153	245
No. Texts coded as OSA	22	42	97	161

When compiling the Han CH-EN corpus the L1 factor was isolated as much as possible to make a fair comparison between the two L1 groups. I matched L1 Chinese students' texts with those from L1 English students' texts coded as UKA that is, written by contributors whose entire secondary education had been completed in the United Kingdom. Furthermore, in order to make the comparison more effective, other criteria were added. Each L1 Chinese text was paired with an L1 English text from the same level, the same discipline and the same genre family. If it was possible, they were collected from the same module; failing that they were matched for similar modules. They were collected from 13 genre families, i.e. Case Study, Critique, Design Specification, Empathy writing, Essay, Exercise, Explanation, Literature Survey, Methodology Recount, Narrative Recount, Problem Question and Proposal.

As a result, all pairs of texts were highly-matched in the Han CH-EN corpus. For example, the text with id number 0008a from an L1 Chinese student OSA matches with text number 0354b from an L1 English student in that firstly both texts are at the same level (Level 1), are from the same discipline (Engineering), were produced for the same module (Economics and the Structure of Industry), and matched in terms of genre family (Case Study). The use of such highly-matched data enables better comparison of linguistic features in Chinese and English student writing.

The Han CH-EN corpus has been constructed, which comprises 569, 801 words from 78 texts written by Chinese students (267,707 tokens) and 78 highly-matched texts written by British students (302,094 tokens) (see Table 3.4). It is noted that because of the highly-matched criteria, many Chinese student texts did not find the matched texts from their English counterparts. As a result, 78 of 161 coded as OSA Chinese student texts find the matched texts, with totally 156 Chinese and English student texts in the Han CH-EN corpus. In addition, the number of tokens at Level 4 is larger than any of the other three undergraduate levels, comprising about half the tokens in the Han CH-EN corpus. The greater number of words at Level 4 is because of international students coming to the UK at postgraduate level. It is noted that the number of words has been calculated automatically by Sketch Engine.

Table 3.4: The number of tokens across levels for L1 Chinese and L1 English

	Tokens in Level 1	Tokens in Level 2	Tokens in Level 3	Tokens in Level 4	Total
L1 Chinese	39,705	33,634	68,873	125,495	267,707
L1 English	44,250	37,327	73,370	147,147	302,094
Total	83,955	70,961	142,243	272,642	569,801

The number of texts varies across disciplinary groups. No pairs of texts were collected in AH (Arts and Humanities) at undergraduate level, but 10 texts were collected at Level 4 (see Table 3.5). This reflects Chinese undergraduate student course preferences.

Table 3.5: The number of texts across levels and disciplinary groups

	Texts in Level 1	Texts in Level 2	Texts in Level 3	Texts in Level 4	Total
AH	0	0	0	10	10
LS	16	16	8	14	54
PS	10	8	8	8	34
SS	10	4	18	26	58
Total	36	28	34	58	156

Table 3.6: The number of texts across disciplines

Discipline	CH	EN
Engineering	16	16
Food Sciences	13	13
Biology	10	10
Business	8	8
Law	6	6
Sociology	5	5
HLTM	5	5
Linguistics	5	5
Economics	3	3
Politics	2	2
Agriculture	2	2

Publishing	1	1
Cybernetics/Electronics	1	1
Engineering	1	1
Psychology	1	1
Total	78	78

The texts are distributed in 14 disciplines, and the number of texts vary (see Table 3.6). The top three disciplines of Engineering, Food Science, and Biology contain a larger number of texts, while the three disciplines of Publishing, Cybernetics / Electronics Engineering, and Psychology contain much fewer texts.

Table 3.7: The number of texts across levels and genre families

	Texts in Level 1	Texts in Level 2	Texts in Level 3	Texts in Level 4	Total
Case Study	4	0	4	6	14
Critique	2	2	4	10	18
Design Specification	0	2	4	2	8
Essay	10	4	12	28	54
Explanation	2	2	2	4	10
Literature Survey	0	0	2	0	2
Methodology	18	18	4	4	44
Recount					
Problem Question	0	0	2	0	2
Proposal	0	0	0	4	4
Total	36	28	34	58	156

The number of texts varies across genre families (see Table 3.7). The Essay family (54 texts) is much larger than other genre families, especially the genres of Literature Survey (2 texts), Problem Question (2 texts) and Proposal (4 texts). The variation of the number of the texts is affected by the number of texts across genre families in the BAWE corpus. The Essay family accounts for the majority of the BAWE corpus.

### **3.2.4 Corpus analysis**

A range of tools were employed to analyse metadiscourse resources in this study. These tools were used to identify the metadiscourse devices, to investigate the distribution and frequencies and finally to present the features of L1 Chinese students' academic writing. This section explores how the transitions were investigated.

#### **3.2.4.1 Sketch Engine**

Sketch Engine is a powerful web-based corpus query system, through which users can access a large number of corpora to search for concordances and grammatical patterns (Kilgariff et al. 2004). It was originally developed as a tool for lexicographers at Oxford University Press, Chambers Harrap and Macmillan Publishers (Pearce, 2008), and it is currently widely used by linguists, language researchers and even students, as there are a number of corpora with open access to the public, such as the British Academic Written English (BAWE). Subscribers to Sketch Engine can create their own corpora for analysis.

The highly-matched L1 Chinese and L1 English texts were uploaded to Sketch Engine to create the Han CH-EN corpus and identify metadiscourse transitions. The field of inquiry for transition markers was narrowed down through the use of Corpus Query Language (CQL) `[tag="SENT"][tag="RB.*|CC|IN"]` to identify all adverbs, conjunctions and prepositions in sentence-initial position. The search of items with these parts of speech is related to the feature of transition

markers, and this will be described later in detail (see Section 3.3.2.1). The contexts for these adverbs, conjunctions and prepositions were presented in the concordances, which were sorted manually to identify transition markers.

Each of the texts in the Han CH-EN corpus was given an ID code. For example, a text could be coded as EN2DSENG-2050b. In these codes, the first two letters indicate CHinese or ENglish, the number indicates level of study, the next two letters indicate genre family, the next two or three letters indicate discipline, and the next four numbers identify the student and the final letter identifies the student's text. This code means that the text EN2DSENG-2050b is an L1 English level 2 Design Specification in the disciplines of Engineering, with the BAWE ID: 2050b.

Sketch Engine can be used to investigate collocations of transitions. A collocation shows “the tendency of two words to co-occur”, and “it is more reliable to measure it statistically” (Hunston 2002: 68). There are some transitions which have very close meanings and seem to be semantically interchangeable. Collocation searches in this study were carried out only for transitions which were difficult to distinguish.

Two association measures of MI (mutual information) and Log Dice on Sketch Engine were used for the calculation of the strength of collocations. The MI-score is the Observed (instances of the co-occurring words found) divided by the Expected (instances might be expected), converted to a base-2 logarithm (Hunston 2002: 70), and Log Dice is a measure fairly similar to the MI-score (Gablasova, Brezina and McEnery 2017). MI gives the most importance to the frequency with which collocates occur together as opposed to their independent occurrence, and it give a high collocation score to relative low-frequency word pairs (Baker, Hardie and McEnery 2006: 37-38). An MI-score of 3 or higher can be taken to be significant (Hunston 2002: 71), and the Log Dice score of the same co-occurrence items normally appears higher than MI-score (Gablasova

et al. 2017).

The span for the investigation of the collocation is commonly set as (-5, +5) (Baker 2006: 37), but in this study it was set as (0, +15) because it was intended to find out collocates of transition markers (e.g. in addition) which is on the level of steps of an argument, usually within a clause or a sentence. As Hunston (2002: 75) pointed out, “in some instances they [calculations of collocation] may require a wider span than is commonly used” (e.g. the co-occurrence of “*I wonder...because*”).

#### 3.2.4.2 The OLDAE

As mentioned above, the process of identifying the metadiscourse devices involves the use of basic information of an item, so an authoritative reference dictionary was needed. I employed the *Oxford Learner's Dictionary of Academic English* (OLDAE) in this study to confirm whether items retrieved from my corpus queries could function as transition marker. Parts of speech were confirmed by the dictionary and used in my Corpus Query Language (CQL) searches. Finally, it is noted that in my study a metadiscourse item had to meet Hyland's (2005) three principles of metadiscourse: 1) it is distinct from the proposition of the sentence; 2) it embodies writer-reader interaction; 3) it refers to a relation that is internal to the discourse. The details of using the dictionary will be explained in the pilot study (see Section 3.3).

The *Oxford Learner's Dictionary of Academic English* was chosen to be employed as the main reference dictionary due to its striking features. It focuses exclusively on academic English and aims to help English learners improve their academic writing. It is published by Oxford University Press, one of the most well-known presses in the world and it provides an “in-depth treatment of over 22,000 words, phrases and meanings”, “informed by the 85-million-word Oxford Corpus of Academic English which includes 26 disciplines within the

subject areas of humanities, social sciences, life sciences and physical sciences” (Oxford University Press n.d.). Thus, this dictionary is practical for this study, as the research is also corpus-based and exclusively on academic English. The dictionary, however, have some limitations. For example, generally there are differences in the explanations between two words, but this dictionary seems to fail to serve the function. This dictionary explains straight “but” as “however”, and whether the two words tends to be used in spoken or written situation cannot be identified. If the problems of the dictionary can be solved appropriately, it would be more helpful for researchers and writing tutors, as well as students.

In addition, this dictionary was used to check if the use of transitions in some instances is generally appropriate or inappropriate. It is noted that the one of aims of this thesis is to describe how transition items are used, rather than prescribing usage of these items. In the present research, three respects for the use of the transitions are provided. The first respect is to show how students used these transitions. The second respect is to show how authoritative dictionaries explain the meaning and general usage of these items. This aims to give tutors and students one picture how dictionaries explain them, which is normally a reference for tutors and students for checking the usage of an item. By showing the information in dictionaries, tutors and students can also compare the use of these transitions in student writing with the use of these items in dictionaries. Through the comparison, the third respect is to give an interpretation from the researcher of this study, indicating the use of some items might be “appropriate” or “inappropriate”. The researcher has more than ten years’ of English teaching experience, so I argue that the general description of “appropriate” or “inappropriate” might be helpful for tutors and students to understand the use of these items, but this does not mean my purpose is to prescribe the usage of these items.

#### 3.2.4.3 Rayson’s Log Likelihood calculator, SPSS and Excel

This research employed Rayson's Log Likelihood calculator, IBM SPSS Statistics version 24 and Microsoft Excel to analyse the data on metadiscourse collected from the Sketch Engine. Rayson's Log Likelihood calculator was used in the pilot study (see Section 3.3) for identifying the statistically significant difference of a transition marker between the Han CH and Han EN subcorpus. The scale of the statistically significant difference is shown as below (see <http://ucrel.lancs.ac.uk/llwizard.html>):

- \* 95th percentile; 5% level;  $p < 0.05$ ; critical value = 3.84;
- \*\* 99th percentile; 1% level;  $p < 0.01$ ; critical value = 6.63;
- \*\*\* 99.9th percentile; 0.1% level;  $p < 0.001$ ; critical value = 10.83;
- \*\*\*\* 99.99th percentile; 0.01% level;  $p < 0.0001$  critical value = 15.13;

The IBM SPSS Statistics is a professional software package for statistical analysis, and it has been used in various research fields. It is powerful for calculations and useful for identifying the outliers of each metadiscourse item. Excel is efficient to develop basic tables and to calculate the related sum and frequencies of metadiscourse items.

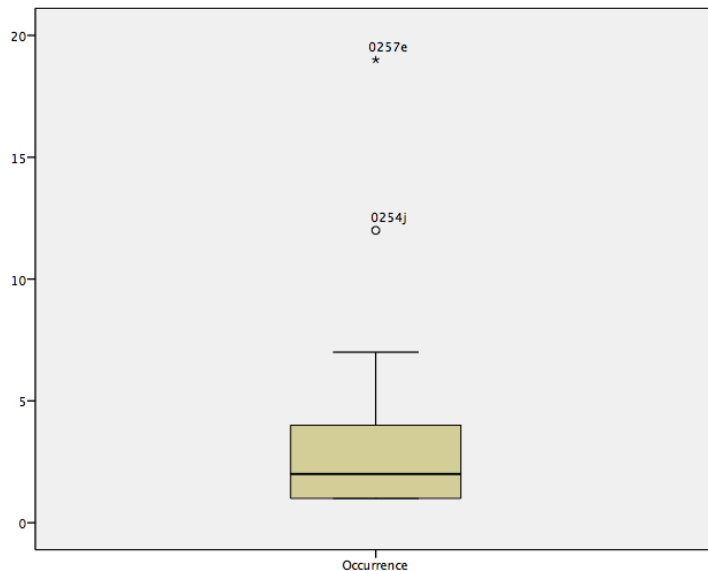


Figure 3.3: The Boxplot of the SIP *and*

One of most important roles that SPSS played was to identify the outliers for each metadiscourse item. When I investigated the distribution of a metadiscourse item, I had to take an important factor into account, that is, whether any outliers occurred. Here the item *and*, one of the transition markers I analysed, is taken as an example to explain how SPSS was used (see Figure 3.3). SIP (sentence-initial position) *and* in L1 Chinese student writing is 79 times in 21 texts (with an average of 3.8 times per text), but SIP *and* occurs in the texts 0257e and 0254j 19 and 12 times respectively, accounting for 19.3% of the total. These outliers do not represent the use of SIP *and* by Chinese students in most texts, so if these outliers had not been identified and excluded the results would have been compromised. Through using the Boxplot of SPSS, outliers can be efficiently identified, which is useful to improve the accuracy and reliability of the statistics for this study.

In addition, in order to make sure the data identification of transitions was consistent and reliable, 100 potential transitions were analysed independently by the researcher and another specialist who has a PhD in applied linguistics and is familiar with metadiscourse theory. The inter-rater reliability of  $r=0.81$  (Kappa) was calculated through SPSS, indicating a high degree of agreement.

### **3.3 Pilot studies**

#### **3.3.1 Introduction**

In order to judge the feasibility and test the designed process of the research, a pilot study was carried out before conducting the main study. As Dörnyei (2007) claims, it is essential to conduct a pilot study and the quality of the study will be spoiled by any attempt to shortcut the piloting part. A pilot study is helpful for us to avoid frustration and possible extra work in the main study. Two typical transitions *however* and *but* were examined in the Han CH-EN corpus. It was hoped that the pilot study would be helpful to test the feasibility of the main study, find out the problems which might be come across and solve them properly in advance.

There are three primary steps to investigate the two transitions in the pilot study: 1) identifying the transitions in the Han CH-EN corpus; 2) showing the findings and the results of the comparison between two subcorpora; 3) discussing the features of the use of the two items by Chinese and English writers.

#### **3.3.2 *However*: a pilot analysis**

##### **3.3.2.1 Identifying the transition *however***

In order to show how to identify and analyse metadiscourse devices in the Han CH-EN corpus, the marker *however* was examined in the pilot study. *However* was chosen because results from studies reviewed in the literature review indicated that it was an item with high frequency in academic writing. According to Hyland (2005: 50), transitions are “mainly conjunctions and adverbial phrases which help readers interpret pragmatic connections between steps in an

argument.” The transition *however* examined in this study has the feature of metadiscourse, performing “a role internal to the discourse rather than the outside world” (Hyland 2005: 50).

In fact, not every instance of *however* in the corpus is a transition. According to the *Oxford Learner's Dictionary of Academic English* (OLDAE), there are three basic functions of *however* in academic English. Only one of the three types of *however* plays a role of transition, which is, as the dictionary describes, “used to introduce a statement that contrasts with something that has just been said” (Lea, Bull, Webb, and Duncan 2014: 395). However, with the other two senses *however* cannot be used as a transition marker, i.e. 1) “(with an adjective and adverb) to whatever degree”; and 2) “in whatever way”. Since these senses do not connect steps of an argument, it is necessary to exclude these senses of *however* during data collection.

*However* with the meaning of “to whatever degree” can be firstly identified using Corpus Query Language (CQL) with the query [lemma = "however"] [tag= "JJ.\*|RB.\*"|tag="VV.\*"&word=".\*ed"]. This CQL can identify the lemma *however* followed by adjective, adverb and past participle in the corpus. The item *however* with the meaning of “to what extent” was not identified in the Han CH-EN corpus. *However* with the meaning of “in whatever way” had to be excluded manually as it does not have a special position grammatically and cannot be identified with CQL. It was found that there was one *however* with the meaning of “in whatever way” in each subcorpus (Han CH and Han EN). They occur in the following sentences:

The region – *however* defined – must not attempt to shut out the rest of the world in a ‘reactive’ and closed response to issues of globalisation (EN4ESPOL-0255d).

Without clear guidance as to when corporate group structures constitute a “mere facade”, corporate groups are practically free to operate *however* they please (CH3ESLAW-0410b).

It is noted that in the above two sentences, the item *however* can be explained as “in whatever way” to modify the verb in each sentence, so it is not a transition to show the contrast between steps of an argument and needs to be excluded. After this process of exclusion, all the instances of *however* examined in this study were all metadiscourse transitions.

To sum up, the identification of the transition *however* includes two steps: firstly, through the use of the “Simple query” function in Sketch Engine the overall occurrence of *however* can be determined in both subcorpora of Han CH and Han EN; then by excluding items which are not metadiscourse, the transition *however* can be identified.

### 3.3.2.2 Findings for the transition *however*

The position of a transition marker in a sentence is flexible, so *however* in this study was investigated in Sentence-initial Position (SIP), Sentence-medial Position (SMP) and Sentence-final Position (SFP). As a special position in SIP, furthermore, a transition may occur in Paragraph-Initial Position (PIP). It was expected to find the characteristics of a transition in the various positions. The occurrences of *however* in the four positions for both L1 Chinese student texts and L1 English student texts are shown in Table 3.8.

Table 3.8: The occurrences of *however* in different positions

	Han CH	Han EN
Total “however”	244	364**
SIP “however”	204	219
SMP “however”	40	141****
SFP “however”	0	4*
PIP “however”	43****	15

Table 3.8 shows the difference in the occurrence of transition *however* in terms of its position in sentences in the Han CH and Han EN subcorpora. Generally, the frequency of the transition *however* is almost one third less in the L1 Chinese students’ texts than in the L1 English students’ texts, with a significant difference at the level of 1% ( $p < 0.01$ ).

Table 3.9: The frequency of *however* in words and sentences

	Han CH	Han EN
Words (W)	211,993	245,313
Sentences (S)	15,107	16,336
Average sentence length	14	15
Metadiscourse (MD) “however”	244	364
W/MD “however” ratio	869	674
S/MD “however” ratio	62	45

Here the Words/Metadiscourse (W/MD) ratio and Sentence/Metadiscourse (S/Metadiscourse) ratio in Table 3.9 are used to show the frequency of metadiscourse, i.e. the occurrence of one metadiscourse item in the number of words and in the number of sentences respectively. As the Words/Metadiscourse (W/MD) ratio in the table shows, the item *however* occurs once in every 869 words in the L1 Chinese students’ texts, while it occurs once in every 674 words in the L1 English texts, which suggests *however* occurs

more frequently in the texts of L1 English students. For the ratio of Sentence / Metadiscourse (S/MD), *however* occurs once in every 62 sentences in Han CH, while it occurs in every 45 sentences in Han EN. Furthermore, it was found that the sentences in the two subcorpora almost have almost the same length (14 vs. 15 in Chinese and English texts respectively). Therefore, the transition *however* also occurs more frequently in the texts of L1 English students from the perspective of the average occurrence per number of sentences. In conclusion, L1 Chinese students use the transition *however* substantially less frequently than L1 English students.

It was also found that the transition *however* has different occurrences in specific positions (see Table 3.8). Significant differences were found in the positions of SMP, SFP and PIP, at levels of 0.01% ( $p < 0.0001$ ), 5% ( $p < 0.05$ ) and 0.01% ( $p < 0.0001$ ) respectively.

Table 3.10: The occurrences of SIP *however*

	Han CH	Han EN
Total	244	364**
SIP “however”	204	219
Percentage	83.6%	60.2%

While L1 Chinese students used the transition *however* significantly less often than L1 English students, both L1 groups used almost the same number of transition SIP *however* (204 vs. 219), and there was no significant difference for SIP “however” in the two subcorpora. It was found that both L1 Chinese students and L1 English students prefer to place *however* sentence-initially, with 83.6% and 60.2% of the overall use of *however* respectively (see Table 3.10), and that Chinese students have a stronger preference for the use of SIP *however* than their English counterparts.

Table 3.11: The occurrences of SMP *however*

	Han CH	Han EN
Total	244	364**
SMP “however”	40	141****
Percentage	16.4%	38.7%

Table 3.11 shows that the occurrence of SMP *however* in the Han CH subcorpus (40) is less than one third of that in Han EN (141). The SMP *however* only accounts for 16.4% of the overall occurrence of *however* in the Han CH subcorpus, while it accounts for a substantially higher percentage (38.7%) of the overall occurrence in the Han EN. A significant difference in the use of SMP *however* in the two subcorpora is found at the level of 0.01% ( $p < 0.0001$ ), which is higher than the significant difference level of 1% ( $p < 0.01$ ) for the overall occurrence of *however* between the two subcorpora.

Table 3.12: The distribution of SMP *however* in texts and students

	Han CH	Han EN
Texts	21	47
Total texts	78	78
Percentage	26.9%	60.3%
Students	15	33
Total students	32	50
Percentage	46.9%	66.0%

Furthermore, Table 3.12 shows the difference in the distribution of SMP *however* in the Han CH-EN corpus. The number of texts containing SMP *however* is smaller in Han CH subcorpus than in Han EN, and it accounts for 26.9% and 60.3% of the overall texts in the two subcorpora respectively. It was found that 15 L1 Chinese students used SMP *however*, while over double of L1 English students used SMP *however* in their texts. The percentage of students

that use SMP *however* in the Han CH (46.9%) is approximately one fifth less than in the Han EN (66.0%). Thus, the comparison of the total number and distributions in texts and students reveals that L1 Chinese students do not commonly use *however* in medial position, while this is common for their L1 English counterparts.

Table 3.13: The occurrences of SFP *however*

	Han CH	Han EN
Total	244	364**
SFP “however”	0	4*
Percentage	0%	1.1%

Table 3.14: The distribution of SFP *however*

	Han CH	Han EN
Texts	0	2
Total texts	78	78
Percentage	0%	2.6%
Students	0	2
Total students	32	50
Percentage	0%	4.0%

Table 3.13 shows the difference in the use of SFP *however* between the Han CH and Han EN subcorpus. There is no SFP *however* in Han CH, while there are four in the Han EN. For example, “Many organisations have been more successful currently, *however*” (EN3ESCYB-6101c). Although SFP *however* occurs in Han EN, it only accounts for 1.1% of the total occurrence. Significant differences in the use of SFP *however* in the two subcorpora was also found, at the level of 5% ( $p < 0.05$ ), which is lower than the significance level 1% ( $p < 0.01$ ) for the overall occurrence. Furthermore, the four SFP *however* occur in fairly limited texts and only by a limited number of students (See Table 3.14). To sum

up, the results suggests that L1 Chinese students do not use *however* at the end of a sentence, while L1 English students occasionally do.

Finally, as a special case of SIP, the occurrences of PIP *however* differ in the texts of L1 Chinese students and their L1 English counterparts (see Table 3.15). The frequency of PIP “however” in Han CH is almost three times greater than that in Han EN (42 and 15 respectively). Furthermore, for the percentage in the overall occurrences, PIP *however* in the Han CH occurs over four times more often than in the Han EN (17.6% and 4.1% respectively). The significant difference level was 0.01% ( $p < 0.0001$ ).

Table 3.15: The occurrences of PIP *however*

	Han CH	Han EN
Total	244	364**
PIP “however”	43****	15
Percentage	17.6%	4.1%

Table 3.16: The distribution of PIP *however* in texts and students

	Han CH	Han EN
Texts	23	11
Total texts	78	78
Percentage	29.5%	14.1%
Students	12	10
Total students	32	50
Percentage	37.5%	20.0%

Similar differences can also be reflected in the distribution in texts and students (see Table 3.16). The percentages of PIP *however* in terms of texts and students are almost twice as large in the Han CH as in the Han EN. This

suggests that L1 Chinese students use *however* in the initial position of a paragraph more frequently than L1 English students.

### 3.3.2.3 Discussion of the results of transition *however*

According to the statistics presented above, we have a picture of how Chinese and English student writers use the metadiscourse item *however* in their writing, and the similarities and differences of the use of *however* in the writing of the two groups of writers were shown. Then, I will attempt to explain these features of the use of this item in their writing.

Firstly, both L1 Chinese and L1 English students mostly used *however* in the sentence-initial position. The transition *however* is “used to introduce a statement that contrasts with something that has just been said” (Lea et al. 2014: 395). For instance,

In order to design the bridge circuit, a theoretical balance condition is used to determine the resistances in the bridge. *However*, these resistances are expected to change as the temperature of the system rises (EN2DSENG-2050b).

Thus, the Dutch were able to replace the Portuguese’s monopoly position in trade with Asia, as well as developing trade with Africa and Americas. *However*, its trade position was weakened as the Dutch became involved in wars with Britain (CH1ESECO-0071a).

In the two examples above, the item *however* functions as a transition to show the contrastive relation with the last sentence.

Although there are similarities when L1 Chinese and L1 English students use SIP *however*, there are also some differences. The percentage of SIP *however* in Han CH is substantially higher than that in Han EN (83.6% and 60.2% respectively), which means that L1 Chinese students have a stronger tendency to use *however* in the sentence-initial position, while L1 English students use *however* in a wider variety of positions.

The L1 Chinese students usually placed *however* in sentence-initial position, and used *however* in the medial position less often. The frequency of SMP *however* in L1 Chinese student texts is significantly less than that in L1 English student texts, and the percentage of SMP *however* in Han CH is much lower than that in Han EN. There might be two reasons for this. Firstly, the language competence of Chinese students is probably lower than their English counterparts. Many L1 Chinese students might not be aware of the use of *however* in the medial position, or they may not be confident to use it correctly in this way. Secondly, most L1 Chinese students are influenced by their first language, and in Chinese written or even spoken language, the equivalent of *however* is “然而(rán ér)”, which tends to be used in the initial position, instead of the medial position of a sentence, to show the contrast with the previous discourse. The following examples are typical for how L1 Chinese students and L1 English learners using SMP *however* in their texts.

The monetarist approach *however*, emphasises the role of expectations in distinguishing the long-run Phillips curve and the Short-run Phillips curve (EN2ESECO--399b).

Such a reading, *however*, does not exhaust the rich implication of Marx's theory (CH4ESSOC-0319a).

In fact, as the exploration of SMP *however* went further, more characteristics were identified. For the SMP *however* which is used in the middle of a clause, it

occurs in both Han CH and Han EN. The first case is that it follows the subject of a sentence, for instance,

The monetarist approach *however*, emphasises the role of expectations in distinguishing the long-run Phillips curve and the Short-run Phillips curve (EN2ESECO-399b).

Here the subject, the monetarist approach, has been introduced earlier in the text, and is presented as given or old information; this allows *however* to introduce the rest of the sentence. In this case *however* plays its role of introducing new information that contrasts with what was said earlier. This provides a useful rule of thumb for when to use sentence initial and when to use sentence medial *however*: sentence medial *however* can be used when the subject is given information. At the same time, this *however* as a transition plays the role of introducing a statement that contrasts with the previous discourse.

In the same way, SMP *however* can be placed after other linguistic elements to let these elements occur at the beginning of the sentence, as in the following cases, following an adverbial, or a verb:

In some areas, *however*, the opposite is true (EN3ESCYB-6101).

There are, *however*, many questionable areas in Herzberg's two-factor theory (CH1ESBUS-0271C).

The two examples above show how Chinese and English students used *however* in the medial position of a sentence flexibly following an adverbial and a verb.

It seems necessary for both L1 Chinese and L1 English students to master the use of SMP *however* mentioned above. If students are aware of the use of SMP *however*, they can use it to emphasise the linguistic element that they think is most important in the sentence. It is arguable that when L1 Chinese students have a full understanding of the use of SMP *however*, they may be more confident to use it in their academic writing.

When taking a closer look at the SMP *however*, there are three main types of SMP *however* examined in the research: 1) the clause-medial SMP *however*; 2) the SMP *however* following a semicolon between clauses; 3) the SMP *however* used as a conjunction. Details will be discussed in the following parts.

Clause-medial SMP *however*, sometimes occurs with a comma to separate it from the other elements of the clause. The two examples below show the clause-medial *however*, in which the first *however* goes without punctuation, while the second one goes within two commas.

They *however* do have a high level of control over the price of replacement parts and services (CH1CSENG-0008a).

In some areas, *however*, the opposite is true (EN3ESCYB-6101).

Although clause-medial SMP *however* occurs in both subcorpora, there are substantial differences in the occurrences and percentages. As Table 3.17 shows, there are only 12 occurrences of clause-medial SMP *however* in the Han CH subcorpus, while there are 87 in the Han EN, which is about seven times more. Furthermore, clause-medial SMP *however* accounts for 30.0% of the overall occurrences of SMP *however* in the Han CH subcorpus, which is less than half than in the Han EN. A significant difference in the use of the

clause-medial SMP *however* was also found at the highest level 0.01% ( $p < 0.0001$ ).

Table 3.17: The use of SMP *however* in the middle of a clause

	Han CH	Han EN
Occurrence	12	87****
Total SMP “however”	40	141****
Percentage	30.0%	61.7%

Table 3.18: The distribution of SMP *however* in the middle of a clause

	Han CH	Han EN
Texts	10	36
Total texts	78	78
Percentage	12.8%	46.2%
Students	9	30
Total students	32	50
Percentage	28.1%	60.0%

It is noted that SMP *however* used in the middle of a clause occurs in 12.8% of texts and by 28.1% of the students in Han CH, while it occurs considerably more frequently in the Han EN, in 46.2% of texts and by 60.0% of students (see Table 3.18). The results reveal that L1 Chinese students use clause-medial *however* infrequently, while L1 English students use it commonly in their writing.

The second case of SMP *however* is the one following a semicolon between clauses. For example,

As usual, many people would travel by participating through the travel agents; *however*, there are parts of the travellers do not want to take part

in the travel agents, but only willing to join the local tours organised by tour organisers (CH1CSHLM-3085).

In the above example, the Chinese student used the transition *however* to express the contrastive relation between the two clauses which were separated by a semicolon. The semi-colon serves to bring the two clauses closer together into one sentence, although its function has been described as ‘to separate two main clauses’ (Lea et al. 2014: R25).

Table 3.19: The use of SMP *however* following a semicolon between clauses

	Han CH	Han EN
Occurrence	21*	12
Total SMP “however”	40	141****
Percentage	52.5%	8.5%

According to Table 3.19, L1 Chinese students use SMP *however* following a semicolon between clauses much more frequently than L1 English students as the number of occurrences in Han CH is approximately double that in Han EN, and the percentage of the total occurrences of SMP *however* is about six times more (52.5% and 8.5% respectively). A significant difference was found at the level of 5% ( $p < 0.05$ ). However, the result is fairly different from the occurrence of SMP *however* in the two subcorpora, as SMP *however* is used more frequently in the Han EN than that in the Han CH, with a significant difference at the level of 0.01% ( $p < 0.0001$ ).

Table 3.20: The distribution of SMP *however* following a semicolon between clauses

	Han CH	Han EN
Texts	9	9
Total texts	78	78
Percentage	11.5%	11.5%
Students	5	8
Total students	32	50
Percentage	15.6%	16.0%

As shown in Table 3.20, the distribution of SMP *however* following a semicolon between clauses, it is approximately the same in the Han CH and in the Han EN subcorpora, with exactly the same percentage of texts and approximately same percentage of students. This suggests that this type of *however* is used more frequently by L1 Chinese than by L1 English students, although the distribution in terms of texts and students is generally the same.

Finally, it was found that in both the Han CH and Han EN subcorpora the SMP *however* was used as a conjunction, to connect two main clauses within a sentence. In other words, there are some sentences in which a comma (or no comma) is used between two main clauses and *however* following the comma (or no comma) is used as a conjunction to join the clauses. For instance:

The ones with 0.5 and 0.8 dispersal rate maintained slightly above the initial population size, *however* this could not be recognized strikingly when dispersal rate was 0.2 (CH2MRBIO-0036c).

The strength of the jury lies in trial by one's peers, thought to be the basic symbol of justice, *however* increasingly doubts have been raised as to the competency of a jury (EN3ESLAW-0411a).

In the two sentences above, Chinese and English students used the transition *however* following a comma to connect clauses within a sentence. The use of *however* as conjunction might show some language evolution in student writing, but I argued that this use of *however* shows students' problems with punctuation, i.e. when to use semicolons and when to use commas. Moreover, they may not sure about the part of speech of the transition *however*, i.e. adverb or conjunction. One of reasons might be that they cannot distinguish *however* and *but* which have the function of contrasting two clauses. Unlike *however*, *but* can be used as a conjunction to join two main clauses within a sentence.

Table 3.21: SMP *however* used as a conjunction

	Han CH	Han EN
Occurrence	7	41****
Total SMP "however"	40	141****
Percentage	17.5%	29.1%

There are, however, differences in the use of SMP *however* as a conjunction by Chinese and English students. As shown in Table 3.21, SMP *however* is used as a conjunction only seven times in the Han CH, while it occurs approximately six times more in the Han EN. The level of significance is 0.01% ( $p < 0.0001$ ).

Table 3.22: The distribution of SMP *however* used as a conjunction

	Han CH	Han EN
Texts	6	23
Total texts	78	78
Percentage	7.7%	29.5%
Students	6	18
Total students	32	50
Percentage	18.8%	36.0%

Only six students used this type of SMP *however* in six texts in the Han CH subcorpus, while three times more students used it in approximately four times more texts in the Han EN (see Table 3.22). In short, the use of *however* as conjunction is not commonly used by Chinese students but it is commonly used by their English counterparts. The reason for this might be that L1 Chinese students are more aware of the part of speech of *however* since they are taught grammar systematically in China, while L1 English students are not taught grammar to the same extent since English is their native language.

### 3.3.3 *But*: a pilot analysis

#### 3.3.3.1 Identifying the transition *but*

The *Oxford Learner's Dictionary of Academic English* explains the item *but* as “however; despite this”. Therefore, when we regard *but* as a transition marker, we also construe *but* as a marker “used to introduce a statement that contrasts with something that has just been said”, which is the meaning of “however” as a transition marker (Lea et al. 2014: 395). For example, “This is one principle, *but* it is not the only one” (Lea et al. 2014: 94). In this example, the item *but* meets Hyland’s (2005) three principles of metadiscourse: 1) it is distinct from the proposition of the sentence; 2) it embodies writer-reader interaction; 3) it refers

to a relation that is internal to the discourse. The two examples below show how transition *but* occurs in texts in the Han CH and the Han EN subcorpora:

Due to the similarity of both centres, the economies in these destinations are also in a similar way, *but* Bath did better than Oxford (CH1CSHLTM-3085a).

The addition of extra sodium sulphate and salt affects the rate and the growth in the other columns *but* it is hard to quantify as the columns need to be left for longer to mature sufficiently for the system to have balanced (EN2CRBIO-6011a).

In the two examples above, the item *but* also meets Hyland's three principles of metadiscourse resources. Furthermore, as Hyland (2005: 49) describes, transitions "express relations between main clauses". Therefore, when the item *but* is counted as transition marker in the study it is followed by a main clause, i.e. one with a subject and finite verb. The findings of transition *but* in the Han CH and the Han EN subcorpora will be shown in the next section.

### 3.3.3.2 Findings of the transition *but*

As Table 3.23 shows, the differences between the use of transition *but* in the Han CH and Han EN subcorpora. The overall frequency of transition *but* in the two subcorpora is almost the same, and no significant difference was found. In the Han CH subcorpus, the item *but* occurs slightly more frequently than in the Han EN according to W / MD ratio (see Table 3.24). This shows that the item *but* occurs once in 1122 words in Han CH, while it occurs once in 1291 words in Han EN. A similar result was also found for S/MD *but*, which occurs once in 80 sentences in the Han CH, while it occurs once in 86 sentences in Han EN. In short, the use of transition *but* by Chinese students is more frequent than its use by their English counterparts.

Table 3.23: The occurrences of *but* in different positions

	Han CH	Han EN
Total transition <i>but</i>	189	190
SIP <i>but</i>	76****	8
SMP <i>but</i>	113	182**
SFP <i>but</i>	0	0
PIP <i>but</i>	8	3

Table 3.24: The frequency of *but* in words and sentences

	Han CH	Han EN
Words (W)	211,993	245,313
Sentences (S)	15,107	16,336
Average sentence length	14	15
Metadiscourse (MD) <i>but</i>	189	190
W/MD <i>but</i> ratio	1122	1291
S/MD <i>but</i> ratio	80	86

Apart from the difference in overall occurrence, there is a significant difference between the two subcorpora in terms of SIP and SMP *but*. As Table 3.25 shows, L1 Chinese students use approximately ten times more SIP *but* than L1 English learners (76 and 8 times respectively), with a significant difference at the level of 0.01% ( $p < 0.0001$ ). However, L1 Chinese students use significantly fewer SMP *but* than L1 English students, at the level of 1% ( $p < 0.01$ ) (see Table 3.27).

Table 3.25: The occurrences of SIP *but* in Han CH-EN

	Han CH	Han EN
Total	189	190
SIP <i>but</i>	76****	8
Percentage	40.2%	4.2%

Table 3.26: The distributions of SIP *but* in Han CH-EN

	Han CH	Han EN
Texts	18	7
Total texts	78	78
Percentage	23.1%	9.0%
Students	13	7
Total students	32	50
Percentage	40.6%	14.0%

As shown in Table 3.25, L1 Chinese students use SIP *but* significantly more frequently in their texts than L1 English students, and there is huge difference in the percentages of the overall occurrence of *but* (40.2% and 4.2% in the Han CH and the Han EN respectively). For the distribution, SIP *but* is used by about twice the number of students in over twice the number of texts in the Han CH than in the Han EN (see Table 3.26). This demonstrates that SIP *but* is more commonly used by Chinese students than English students.

Table 3.27: The occurrences of SMP *but*

	Han CH	Han EN
Total	189	190
SMP <i>but</i>	113	182**
Percentage	59.8%	95.8%

Table 3.28: The distributions of SMP *but* in texts and students

	Han CH	Han EN
Texts	51	53
Total texts	78	78
Percentage	65.4%	67.9%
Students	24	36
Total students	32	50
Percentage	75.0%	72.0%

As for SMP *but*, it was found that L1 Chinese students used it significantly less frequently than their L1 English counterparts, with a difference at the 1% level ( $p < 0.01$ ) (see Table 3.27). Table 3.28 shows that fewer L1 Chinese students (24 vs. 36) use SMP *but* in fewer texts (51 vs. 53) than English students. The distribution of SMP *but* in terms of students and texts is very similar in the two subcorpora. In short, the findings suggest that English students use significantly more *but* in the medial position in sentences, although both groups of students used *but* at this position more often than in other positions.

Table 3.29: The occurrences of SFP *but*

	Han CH	Han EN
Total	189	190
SFP <i>but</i>	0	0
Percentage	0%	0%

Table 3.30: The occurrences of PIP *but*

	Han CH	Han EN
Total	189	190
PIP <i>but</i>	8	3
Percentage	4.3%	1.5%

Table 3.29 shows there is no occurrence of SFP *but* in the Han CH and the Han EN subcorpora. Finally, as to occurrence PIP *but*, the special type of SIP, the number is small in each subcorpus (see Table 3.30). This suggests that both Chinese and English students do not have the tendency to start a paragraph with a transition *but*.

### 3.3.3.3 Discussion of findings for the transition *but*

Before explaining the features of the use of transition *but*, we can firstly look at two examples of SIP *but* and SMP *but*, and see how they were used by Chinese and English student writers:

*But* as there are more small individuals, communication problems arise (CH1ESAG-6008h).

The addition of extra sodium sulphate and salt affects the rate and the growth in the other columns *but* it is hard to quantify as the columns need to be left for longer to mature sufficiently for the system to have balanced (EN2CRBIO-6011a).

The two examples of transition *but* above are typical SIP *but* and SMP *but* in the subcorpora of the Han CH and the Han EN. According to the findings, L1 Chinese students employed significantly more SIP *but*, while they used significantly fewer SMP *but* than their L1 English counterparts. This suggests that L1 Chinese students are more likely to place transition *but* at sentence-initial position to express a contrastive relation between two sentences, while L1 English students have a tendency to employ transition *but* at the medial position of a sentence to express the relation between two main clauses within a sentence.

L1 transfer may explain the position of *but* in Chinese students' writing. According to statistics from the corpus of Beijing Language and Culture University, the equivalent word for *but*, “但是 (dàn shì)”, occurs substantially more often in sentence-initial position than in the medial position in Chinese academic texts. “但是 (dàn shì)” following a full stop accounts for 52.9% of its overall occurrence, while it following a comma it only accounts for 41.8% (occurring 190, 549 and 150, 554 times respectively). Compared with L1 Chinese students, however, L1 English students seem to have the full awareness of using a transition *but* between two clauses within a sentence; this causes the use of sentence-initial *but* less commonly by English students. The reason for this might be that they have more exposure of the use and are more familiar with the use.

### **3.3.4 Roles of the pilot study**

Through the examination of the two items of *however* and *but* in the pilot study, the methodology was generally tested and proved to be feasible for the main study. There are, however, primarily three points in the investigation process that need to be improved in the main study. Firstly, the investigation of SMP and SFP metadiscourse should be combined into Non-SIP in the main study. According to the study of the transition *however* and *but*, we can notice that the occurrences of SFP is a considerably small number or even close to zero, so it might be expected that other transitions and would also not occur frequently in the final position of a sentence. So it might not be meaningful to separately investigate the small number of occurrences in SFP. The combination of the two positions into Non-SIP will not affect the design of the research substantially.

Secondly, observed relative frequency should be employed to compare the occurrences of transition markers in the Han CH and the Han EN subcorpora. For example, there are differences in the occurrences of transition markers in

various disciplines, but the size of each discipline in words is different. So instead of only comparing the *observed absolute frequencies*, it is necessary to find out the *observed relative frequencies* when we compare the frequency for transitions in each discipline (Gries 2010). The observed relative frequencies of transitions in disciplines are normalized and reported as frequencies per 1,000 or 1,000,000 words. In this study, we will report per 1,000 words as transitions appear frequently and the size of Han CH-EN corpus is not very large.

The final improvement is the approach to the calculation of statistically significant difference. This improvement was based on communication with my colleagues and supervisors after I presented the analysis of the pilot study to them. In the pilot study statistically significant differences were calculated using Rayson's Log Likelihood calculator, which is suitable for 2x2 calculations. In other words, it takes two variables into account for each corpus, i.e. the frequency of the items investigated and the corpus size. If the comparison is conducted between two texts or two whole corpora without consideration of the number of texts, the accuracy of the result is acceptable. In my research, however, the corpus consists of 78 pairs of texts, and the comparison is conducted between them. Therefore, the 2x2 calculation of Rayson's Log Likelihood calculator seems not suitable for my study.

The independent samples t-test, by contrast, not only takes into account the frequency of the items investigated and the corpus size, but also takes into account mean and standard deviation of samples (Lijffijt et al. 2014). In other words, the difference of the frequency of an item between 78 texts and the different size of each text are taken into account for the calculation of significant difference. For the result of the t-test, if p-value is less than 0.05, it shows there is a statistically significant difference. Conversely, if p-value is larger than 0.05, it shows there is no statistically significant difference.

Since Log Likelihood ratio test does not take into account any uneven distribution of the items in the corpus, so many researcher, such as Paquot and Bestgen (2009) and Lijffijt et al. (2014) do not recommend its use. Lijffijt et al. argue that the p-value in the Log Likelihood ratio test tends to be excessively low, compared with other tests (e.g. t-test, Wilcoxon rank-sum test and the bootstrap test) which account for the uneven distribution. For example, the comparison of the use of the name “Matilda” between male and female authors in the prose fiction subcorpus of the British National Corpus, the p-values are 0.4393, 0.1866, 0.5826 and 0.7768 respectively in Welch’s t-test, Wilcoxon rank-sum test, Inter-arrival time test and the bootstrap test, while it less than 0.0001 in the Log-likelihood ratio test (Lijffijt et al. 2014:5). This suggests that the Log-likelihood ratio test is considerably likely to show statistically significant differences. Thus, in the main research, the Log-likelihood ratio test is replaced by the Independent-Samples t-test in SPSS.

Following on from pilot study, a set of specific methods to conduct the main research were outlined. Firstly, the investigation of the transition markers would include those identified in previous studies, e.g. the list of transitions in Hyland’s (2005) study. New corpus-based approaches would also be adopted to create my own list of transition markers. For example, the Corpus Query Language (CQL) query [tag="SENT"][tag="RB.\*|CC|IN"] would be employed to identify all adverbs, conjunctions, and prepositions in sentence-initial position, which would be helpful to narrow down the field of inquiry. This method was employed because the transitions which have been identified have two characteristics: most of them occur in sentence-initial position and most of them are conjunctions, adverbs or a phrase starting with an adverb or a preposition. Secondly, items that had more meanings would be examined through consulting dictionaries such as the *Oxford Learner’s Dictionary of Academic English* to identify their meanings as transition markers. Then, the transitions occurring in the corpus would be identified, counted, and listed. Lastly, based on the statistics, the characteristics of L1 Chinese and L1 English student writing in terms of transition use would be shown and discussed.

## **Chapter 4 The overall findings of transitions in Chinese and English student writing**

### **4.1 Introduction**

After the pilot study in Chapter 3, the methodology was improved. In this chapter, it is employed to investigate the overall data. The individual transition markers (or transitions) are firstly investigated, and their frequencies are presented. Then the transitions are examined in disciplines, and their frequencies are described. Similarly, the transitions are investigated in terms of genre families. Finally, in each case, a comparison is made between use by Chinese and English student writers.

### **4.2 Transition markers in the Han CH-EN corpus**

In total, 46 transitions were identified in the Han CH-EN corpus, with *while* and *whilst* functioning as both comparison and consequence transitions (see Table 4.1). These transition items were classified into three categories. According to the table, the category of consequence is the largest group with 21 transition items; the category of comparison is slightly smaller than consequence, and the category of addition is the smallest group with approximately half the number of the other two categories.

Table 4.1: 46 Transitions in the Han CH-EN corpus

<b>Addition</b>	<b>Comparison</b>	<b>Consequence</b>
additionally	alternatively	accordingly
again	at the same time	although
also	but	as a consequence
and	by contrast	as a result
besides	conversely	because
further	correspondingly	consequently
furthermore	however	even if
in addition	in contrast	even though
moreover	in the same way	hence
	likewise	nevertheless
	meanwhile	nonetheless
	on the contrary	since
	on the other hand	so
	rather	still
	similarly	thereby
	whereas	therefore
	while	though
	whilst	thus
		while
		whilst
		yet
9	18	21

This list includes many of those found in the appendices of Hyland (2005). In addition, the corpus query language led us to *meanwhile*, *correspondingly* and *whilst*, which were not in Hyland's list. For example,

Contrarily, Flege et al. (1995) related the effects of gender with age of learning in his experiment on Italian speakers of English in Canada... *Meanwhile*, many linguists did not find any

significant contribution of gender to the foreign accent ....  
(CH4ESLIN-6058a)

In the example above, the Chinese writer used *meanwhile* to introduce a contrast with the preceding argument that there was close relationship between gender and age.

Table 4.2: Frequencies of transitions in the Han CH-EN corpus

TM	CH		EN		P-value
	AbsFreq	per 1000	AbsFreq	per 1000	
however	244	1.440	364	1.911*	0.047
but	188	0.937	189	0.907	0.873
because	138	0.844	159	0.888	0.813
therefore	132	0.842	211	1.049	0.318
so	88	0.789	130	0.740	0.783
although	106	0.636	127	0.613	0.871
since	109	0.628*	78	0.331	0.048
thus	92	0.601*	91	0.340	0.023
while					
(Comparison)	99	0.553*	27	0.130	0.000
and	48	0.384*	4	0.027	0.032
furthermore	50	0.340	65	0.257	0.343
also	32	0.207	21	0.097	0.064
on the other hand	38	0.206*	9	0.037	0.000
in addition	29	0.202*	14	0.047	0.005
though	36	0.201	16	0.105	0.253
whereas	26	0.189*	14	0.069	0.024
nevertheless	35	0.179*	10	0.045	0.007
hence	32	0.166	46	0.238	0.347
moreover	24	0.123	16	0.056	0.095
while					
(Consequence)	23	0.104	16	0.062	0.352

as a result	19	0.101	13	0.049	0.253
consequently	14	0.101	12	0.109	0.907
yet	20	0.077	35	0.160	0.115
in contrast	11	0.070*	3	0.012	0.025
besides	18	0.070	3	0.017	0.138
additionally	11	0.057	4	0.022	0.247
similarly	9	0.054	12	0.058	0.910
meanwhile	6	0.045	0	0.000	0.100
on the contrary	10	0.043	2	0.017	0.311
again	6	0.041	21	0.085	0.18
likewise	6	0.031	1	0.004	0.062
rather	8	0.028	7	0.034	0.737
at the same time	5	0.028	3	0.008	0.298
even if	6	0.027	15	0.072	0.115
even though	5	0.025	13	0.064	0.111
nonetheless	4	0.025	1	0.005	0.144
conversely	4	0.022	6	0.035	0.490
as a					
consequence	2	0.018	1	0.003	0.286
thereby	2	0.015	1	0.003	0.347
accordingly	2	0.014	7	0.058	0.243
by contrast	3	0.012	1	0.007	0.684
alternatively	2	0.001	6	0.029	0.36
still	1	0.007	4	0.016	0.393
whilst					
(Consequence)	1	0.005	69	0.279*	0.000
correspondingly	1	0.004	0	0.000	0.320
further	1	0.004	5	0.024	0.187
whilst					
(Comparison)	0	0.000	17	0.075*	0.001
in the same way	0	0.000	1	0.002	0.320

\* indicates a significantly greater value ( $p < 0.05$ ).

Table 4.2 shows the absolute and relative frequencies of the 46 transition markers, and the p-values which indicate if there are significant differences in the use of these items by Chinese and English students. The table shows that 6 of the 46 items (i.e. *however*, *but*, *because*, *therefore*, *so*, and *although*) are used by both groups of students more frequently than the other transition markers. There are statistically significant differences in Chinese and English use for 12 out of 46 items ( $p < 0.05$ ). It was found that nine items (e.g. *since* and *thus*) are used more significantly by Chinese writers, and three items (i.e. *however* and two uses of *whilst*) are used significantly more by English writers.

Table 4.3: Transitions used by Chinese and English student writers

	Chinese	English	P-value
Total (n)	1746	1870	
RelFreq (per 1,000 words)	10.500	9.171	$p = 0.070$

Although the absolute frequency of the 46 transitions in the subcorpus of Han CH (NNS Chinese writers) is lower than in the subcorpus of Han EN (NS English writers) (1746 vs. 1870), the relative frequency per 1000 words is higher (10.500 vs. 9.171) (see Table 4.3). This difference is not statistically significant ( $p > 0.05$ ). It means that there is no significant difference for the overall frequency of the use of transition markers in Chinese and English student writing, although Chinese students use them slightly more frequently per 1,000 words than their English counterparts.

Table 4.4: Semantic categories in the Han CH-EN corpus

	Category	CH		EN		P-value
		AbsFreq	RelFreq	AbsFreq	RelFreq	
without outliers	Addition	219	1.427*	153	0.633	0.000
	Comparison	660	3.672	662	3.336	0.285
	Consequence	867	5.401	1055	5.202	0.700
	Total	1746	10.5	1870	9.171	0.070
with outliers	Addition	245	1.580*	153	0.633	0.000
	Comparison	689	3.767	676	3.382	0.232
	Consequence	937	5.659	1119	5.567	0.880
	Total	1871	11.005	1948	9.582	0.074

Table 4.4 shows the frequencies of three semantic subcategories of transition markers with and without outliers. Chinese students used significantly more addition transitions than their English counterparts, whether outliers are included or not ( $p < 0.05$ ). For the subcategories of comparison and consequence there is no significant difference between Chinese and English writers ( $p > 0.05$ ). The role that the items of *and* and *in addition* play in causing the significant difference in the category of addition will be examined in Chapter 7.

### 4.3 Transitions across the disciplines

The absolute and relative frequencies of transition in the Han CH-EN corpus vary across disciplines (see Table 4.5). The absolute frequencies in the disciplines vary considerably, since the number of texts varies across disciplines. The top five disciplines with higher frequencies of transitions in the Han CH subcorpus are Linguistics, Economics, Politics, HLTM, and Law. Three of these five disciplines, Linguistics, Economics, and Law, also have higher relative frequencies of transitions in the Han EN subcorpus.

Table 4.5: Transitions in 14 disciplines

Discipline	CH		EN	
	Absfreq	Relfreq	Absfreq	Relfreq
Linguistics	196	19.114	151	10.750
Economics	82	14.856	92	16.431
Politics	149	13.511	108	9.852
HLTM	160	12.801	105	9.416
Law	179	11.661	172	11.300
Psychology	15	10.352	8	4.960
Business	209	10.159	280	13.312
Engineering	259	9.783	409	8.721
Food Science	142	9.227	157	7.924
Biology	155	8.299	103	5.126
Sociology	156	7.891	213	8.790
Agriculture	11	7.121	26	6.070
Publishing	17	6.672	11	4.086
Cybernetics/Electronics	16	6.415	35	12.229

Figure 4.1 shows the disciplines in the Han CH subcorpus that contain more frequent transitions than in the Han EN subcorpus (ratio>1) from the perspective of relative frequency (per 1000 words). Ratios are used here to show the differences in relative frequencies between the two subcorpora; the statistical significance of these differences will be provided in Chapters 5, 6, and 7. It should be noted that some disciplines (e.g. Publishing and Cybernetics Electronics) contain only a small number of texts, and as a result statistical significant differences may not fully show the generalization of the differences of the use of transitions for these disciplines by the two groups of student writers. The results suggest that in 10 out of 14 disciplines Chinese students use transitions more frequently than their English counterparts. Specific comparisons in three semantic sub-categories of transition will be made in Chapters 5, 6, 7.

Discipline	CH	EN	Ratio
Linguistics	19.114	10.750	1.8
Politics	13.511	9.852	1.4
HLT	12.801	9.416	1.4
Law	11.661	11.300	1.0
Psychology	10.352	4.960	2.1
Engineering	9.783	8.721	1.1
Food			
Science	9.227	7.924	1.2
Biology	8.299	5.126	1.6
Agriculture	7.121	6.070	1.2
Publishing	6.672	4.086	1.6

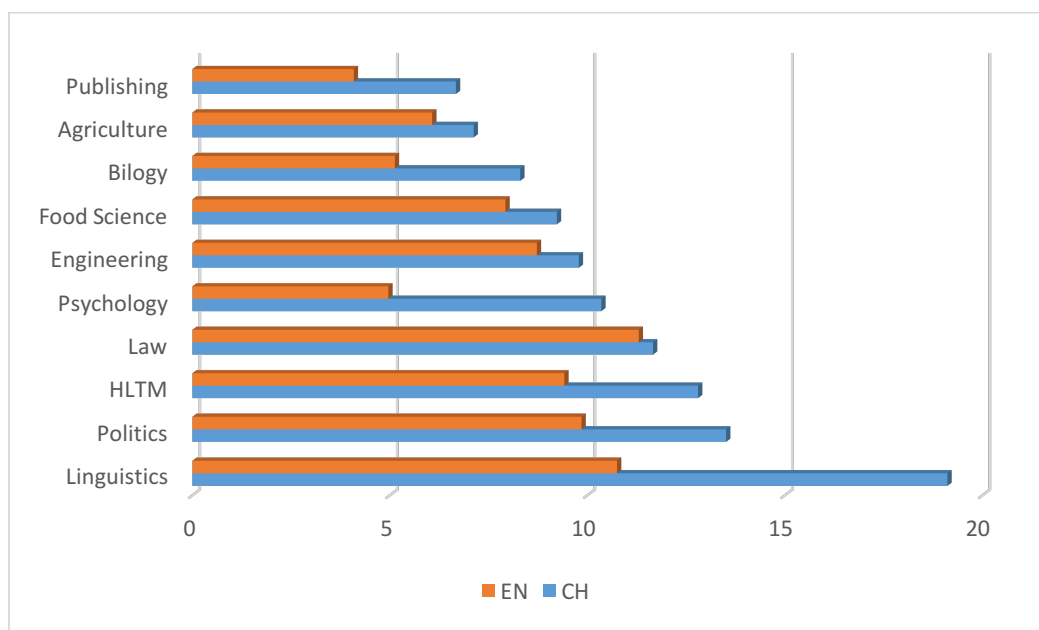


Figure 4.1: Disciplines with more frequent transitions in the Han CH

Figure 4.2 shows the four out of 14 disciplines in the Han EN subcorpus with higher relative frequencies of transitions than in the Han CH subcorpus (ratio>1). It shows that in the disciplines of Economics, Business, Sociology,

and Cybernetics / Electronics, English students use transitions more frequently than their Chinese counterparts.

Discipline	EN	CH	Ratio
Economics	16.431	14.856	1.1
Business	13.312	10.159	1.3
Sociology	8.790	7.891	1.1
Cybernetics/Electronics	12.229	6.415	1.9

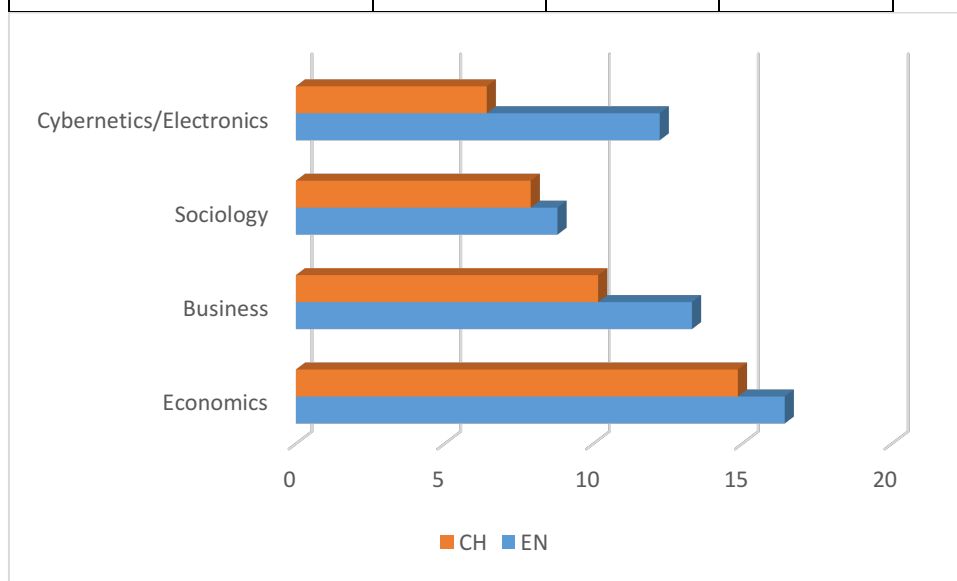


Figure 4.2: Disciplines with more frequent transitions in the Han EN

#### 4.4 Transitions across the genre families

The absolute and relative frequencies vary across the nine genre families in the Han CH-EN corpus (see Table 4.6). The absolute frequencies of transitions in the genre families vary considerably, since the number of texts varies in each genre family. The top five genre families with higher relative frequencies of transition in the Han CH subcorpus are Problem Question, Critique, Essay, Methodology Recount, and Design Specification. Three of these five genre families, Problem Question, Critique, and Essay, also have higher relative frequencies of transitions in the Han EN subcorpus.

Table 4.6: Transitions in 9 genre families

Genre	CH		EN	
	Absfreq	Relfreq	Absfreq	Relfreq
Problem Question	13	12.287	65	19.118
Critique	232	11.909	241	10.042
Essay	922	11.880	841	10.469
Methodology				
Recount	274	10.240	298	7.691
Design				
Specification	72	10.156	119	6.786
Case Study	128	8.168	207	10.778
Explanation	55	8.038	69	7.231
Literature Survey	31	7.159	8	4.165
Proposal	19	4.173	22	5.518

Figure 4.3 shows the genre families in the Han CH subcorpus that contain more frequent transitions than in the Han EN (ratio>1) in terms of relative frequency (per 1000 words). It shows that the majority of genre families (six out of nine) contain higher relative frequencies in the Chinese subcorpus than in the English subcorpus, especially in genres like Literature Survey and Design Specification.

Genre family	CH	EN	Ratio
Critique	11.909	10.042	1.2
Essay	11.88	10.469	1.1
Methodology Recount	10.24	7.691	1.3
Design Specification	10.156	6.786	1.5
Explanation	8.038	7.231	1.1
Literature Survey	7.159	4.165	1.7

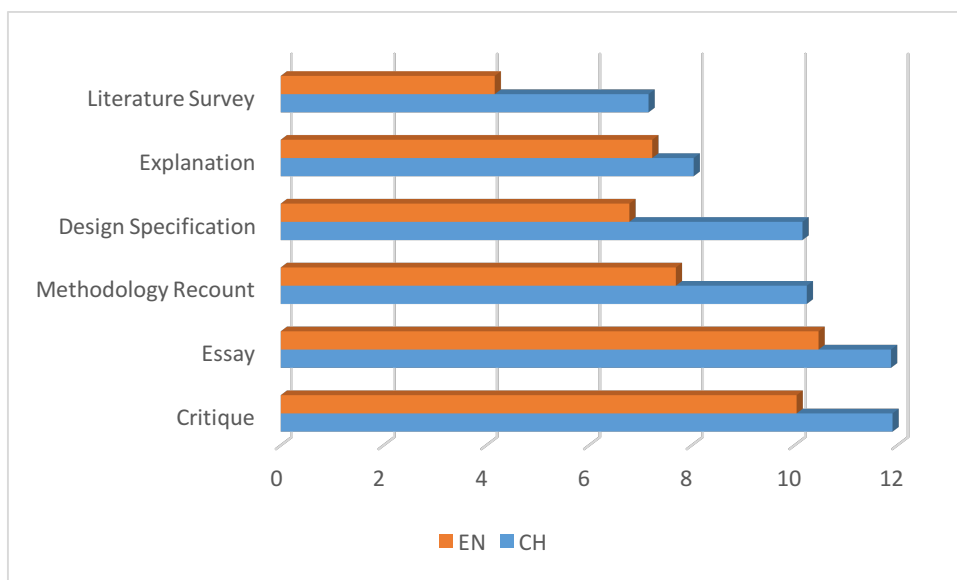


Figure 4.3: Genre families with more frequent transitions in the Han CH

Figure 4.4 shows the genre families that contain more frequent transitions in the Han EN subcorpus than in the Han CH subcorpus (ratio>1) in terms of relative frequency. It shows that English students use transitions more frequently than Chinese students in fewer genre families, although a substantial difference of relative frequency occurs in the genre Problem Question.

Genre	EN	CH	Ratio
Problem Question	19.118	12.287	1.6
Case Study	10.778	8.168	1.3
Proposal	5.518	4.173	1.3

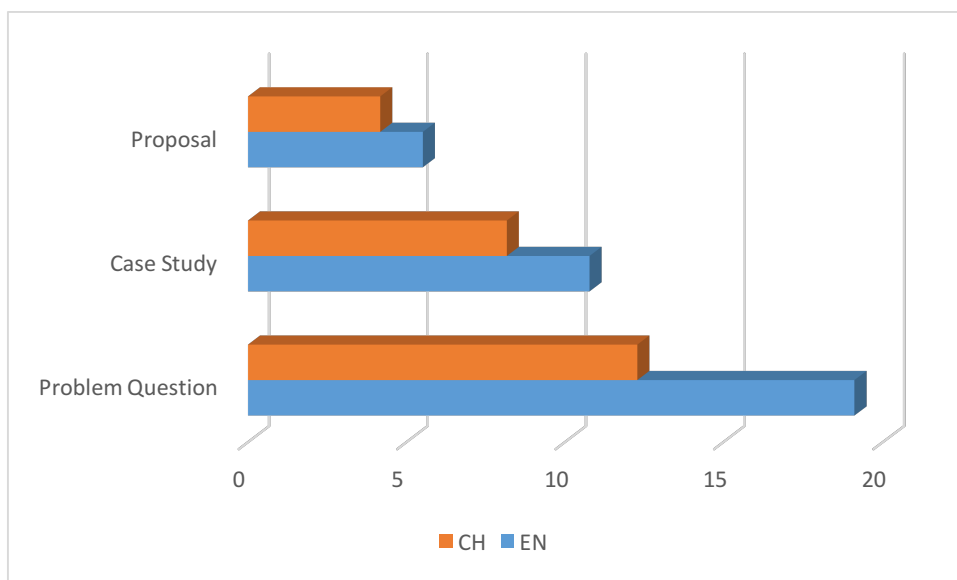


Figure 4.4: Genre families with more frequent transitions in the Han EN

To conclude, this chapter has explored the overall findings of transitions in the Han CH-EN corpus in terms of specific items, disciplines, and genre families. It was found that overall Chinese student writers used transitions more frequently than their English counterparts, but that this difference was not statistically significant. A statistically significant difference only occurred in the category of addition, but not in the categories of comparison and consequence. Moreover, Chinese student writers used transitions more frequently in more disciplines and genre families than English student writers. The statistically significant differences in terms of discipline and genre family have not been presented since this chapter only aims to provide a general picture of the use of transitions in the Han CH-EN corpus. Further more specific comparisons will be made in the following three chapters, i.e. Chapter 5 for comparison transitions, Chapter 6 for consequence transitions, and Chapter 7 for addition transitions.

## **Chapter 5 The investigation of Comparison**

### **5.1 Introduction**

The previous chapter provided general findings on transitions in the Han CH-EN corpus. From this chapter, specific investigations on the three categories of transitions (addition, comparison, and consequence) are presented. This chapter focuses on the examination of comparison, which includes two subcategories. As Hyland (2005: 50) points out comparison marks arguments as either different or similar. This chapter is divided into two parts, and examines in detail the two subcategories of contrasts and similarities. The first part focuses on contrasts; it presents the statistical findings of contrasts in term of disciplines, genre families, and specific contrastive items, and attempts to explain the use of contrasts in the Chinese and English student writing. The second part focuses on the similarities; it presents the statistical findings for this subcategory, and attempts to explain the use of specific similarity items in the writing of the two groups of students.

### **5.2 General findings for contrasts**

The difference in the use of contrasts in the writing of Chinese and English writers will be compared across the corpus as whole, and across disciplines and genre families. An examination of individual contrastive transition markers where there are significant differences follows.

#### **5.2.1 Variation in disciplines**

Table 5.1 shows the general difference of the use of the contrasts by the Chinese and English writers in English. The observed absolute frequency of contrasts in the two subcorpora were found to be close (644 vs. 648), and there was also not a large difference in terms of relative frequency (3.580 vs. 3.270

per 1000 words). Thus, no statistically significant difference in the use of contrasts was found in the two corpora ( $p>0.05$ ).

Table 5.1: Contrasts in the Han CH-EN corpus

	Chinese	English	P-value
<b>Contrasts (N)</b>	644	648	
<b>Mean (per 1000 words)</b>	3.580	3.270	$p=0.309$

An examination of the use of contrasts across the five main disciplines (those with more than five pairs of student texts each) demonstrates that Chinese and English student writers are both following similar disciplinary norms (see Figure 5.1). It was found that contrastive items are almost twice as frequent in Law than in Biology, and the relative ordering of the disciplines is the same for both groups of students. Across disciplines, no statistically significant ( $p>0.05$ ) differences were found in the use of contrasts by the Chinese and English writers.

Discipline	CH	EN	p-value
	Mean per 1000 words		
Law (LAW)	4.284	4.761	0.701
Business (BUS)	4.071	3.899	0.821
Food Science (FS)	3.455	3.188	0.767
Engineering (ENG)	2.385	2.713	0.556
Biology (BIO)	2.232	2.425	0.71

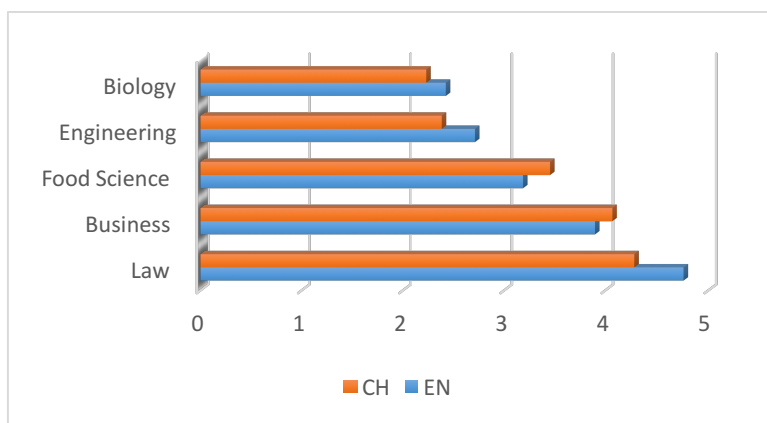


Figure 5.1: Contrasts across the main disciplines

### 5.2.2 Variation in genre families

Figure 5.2 shows the relative frequencies of contrasts across the five main genre families which contain more than five pairs of student texts each. For both groups of students, the more discursive genre families of Critique and Essay use more contrasts than the more technical genres of Methodology Recount and Explanation. The pattern breaks down for Case Studies which are similar to the discursive genres for English writers and similar to the technical genres for the Chinese writers, but the differences are not statistically significant ( $p > 0.05$ ).

Genre	CH	EN	P-value
	Mean per 1000 words		
Critique (CR)	4.522	3.690	0.435
Essay (ES)	4.473	3.751	0.147
Case Study (CS)	3.299	3.964	0.394
Methodology Recount (MR)	2.961	2.773	0.763
Explanation (EXP)	2.349	2.373	0.831

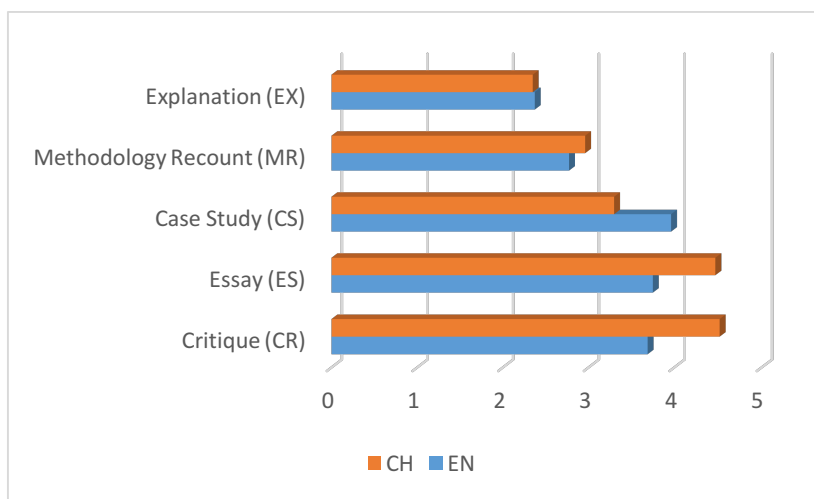


Figure 5.2: Contrasts across the main genre families

### 5.2.3 The use of individual contrastive items in the Han CH-EN corpus

As shown in Figure 5.3, 14 different contrasts were identified in the Han CH-EN corpus. In this category, the three most frequent contrastive items are *however*, *but* and *while*, accounting for more than 80% of the contrasts.

Contrasts	CH		EN		P-value
	AbsFreq	per 1000	AbsFreq	per 1000	
however	244	1.440	<b>364</b>	<b>1.911*</b>	0.047
but	188	0.937	189	0.907	0.873
while	<b>99</b>	<b>0.553*</b>	27	0.130	0.000
on the other hand	<b>38</b>	<b>0.206*</b>	9	0.037	0.000
whereas	<b>26</b>	<b>0.189*</b>	14	0.069	0.024
in contrast	<b>11</b>	<b>0.070*</b>	3	0.012	0.025
on the contrary	10	0.043	2	0.017	0.311
rather	8	0.028	7	0.034	0.737
meanwhile	6	0.045	0	0.000	0.100
at the same time	5	0.028	3	0.008	0.298
conversely	4	0.022	6	0.035	0.490
by contrast	3	0.012	1	0.007	0.684

alternatively	2	0.010	6	0.029	0.360
whilst	0	0.000	<b>17</b>	<b>0.075*</b>	0.001
Total	644	3.583	648	3.271	0.309

\* indicates a significantly greater value ( $p < 0.05$ ).

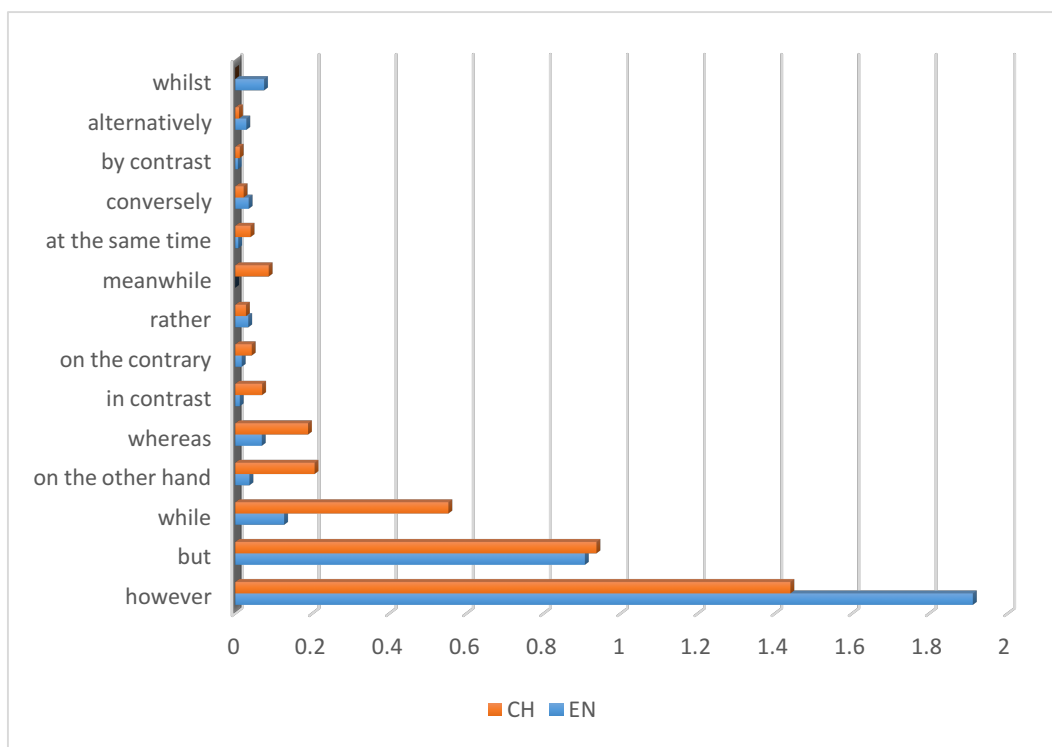


Figure 5.3: Frequency of 14 Contrasts

English writing across disciplines or genre families, Figure 5.3 shows significant differences for individual contrast items. Two items are used more frequently by English writers (*however*, *whilst*) and four items are used more frequently by Chinese writers (*while*, *on the other hand*, *whereas*, and *in contrast*).

## 5.3 Findings for the use of specific contrastive items

### 5.3.1 Introduction

After presenting the statistical findings of contrast, this section will explore the use of specific transition items. According to Section 5.2.3, we can notice

variation of the use of contrasts in the Han CH and EN subcorpora. Chinese writers used significantly more contrasts of *while*, *on the other hand*, *whereas* and *in contrast*, while English writers used significantly more contrasts of *however* and *whilst*. The following sections firstly explore these two groups of items with significant differences, then other items without significant differences are explored. Since the contrast *however* has been investigated in the pilot study, it is not examined in this section.

### 5.3.2 The use of the contrastive *while* and *whilst*

The contrast *while* was one of the most common contrastive items in the Han CH-EN corpus, and was used significantly more frequently by Chinese writers compared with their English counterparts. *While* can be used to in a temporal, contrastive and concessive senses, according to the *Oxford Learner's Dictionary of Academic English* (Lea et al. 2014: 900). Contrastive *while* is "used to contrast two things". For example,

To conclude, we can say that Britain succeeded in making the transition into "modern economic growth" *while* the Dutch did not. (CH1ESECO-0071a)

It is interesting that the control sample was also translucent *while* the unpasteurized control sample was still cloudy. (EN2MRFS-6004d)

The two examples above illustrate the most typical use of *while* in the Han CH-EN corpus. The first example is from a Chinese first year of undergraduate writer in the discipline of Economics, and the writing belongs to the genre family of Essay. The student contrasted two different results of economic development in Britain and the Netherlands, using the contrastive item *while* in her conclusion. The second example is from an English second year of undergraduate student in the discipline of Food Science, and the writing

belongs to the genre family of Methodology Recount. The writer employed the contrastive item *while* to contrast the state of two samples.

Some variations in the use of contrastive *while* can be found in the Han CH subcorpus. For example,

In commodity-capitalist society, exchange-process seems to be dominant, *while* in fact, production plays a more decisive role in determining the magnitude of value. (CH4ESSOC-0319a)

In the example above, the Chinese writer tried to show the contrastive sense through the use of contrastive *while* with the phrase *in fact*, suggesting "production" rather than "exchange-process" is the key factor to determine the "magnitude of value". According to Swan (2005: 157-158) contrastive *while* is used to "balance two facts or ideas that contrast, but do not contradict each other", while the contrast *but* is used to counter an argument. In this example, however, *while* seems to be used in the sense Swan allocates to contrastive *but*. A search for "while in fact" and "but in fact" in the subcorpus of Written Books and Periodicals of the BNC (British National Corpus) give further insight into the collocation in this case. The co-occurrence of "while in fact" occurs eight times, while the collocation of "but in fact" occurs 298 times.

Another related misused example is as follows,

The aim of the experiment was to follow the growth curve of *Serratia marcescens* in nutrient broth by using a side-arm flask and a spectrophotometer at 30 ° C. *While*, a viable count was carried out at the beginning and end of the exponential phase of the growth in order to prove that not only the mass but also the number of cells increased during growth. (CH1MRBIO-0041a)

This example is from a Chinese first year undergraduate writer in the discipline of Biology. The two sentences intend to report on the experiment, where what had been planned might differ to some extent from what was done in practice. The author used contrastive *while* with a comma, but she might not have had a clear idea of the relationship between the two sentences, or she might have wanted to use *while* to express the meaning of *however*. This might explain the addition of the comma. This inappropriate use of contrastive *while* was probably due to the students' level of study. As we can see the author was an undergraduate freshman at the beginning of her university study in the UK. If we replace the *while* in the example with "but in fact", the contrastive meaning might be expressed more clearly. To conclude, the misuse of contrastive *while* might be because the use of the contrastive items has been misunderstood, or because the relationship between the two steps of an argument have been misunderstood.

Most uses of contrastive *while* in the Han CH and Han EN subcorpora occur in the second clause of a sentence. Writers sometimes use a comma before contrastive *while* to separate the two clauses in the sentence. For example,

It can be easily seen that language use was identified as a very important factor and the difference is that males thought the language used at work was the second important factor just less than the age influence, *while* females thought a lot of overall language use. (CH4ESLIN-6058a)

This position of contrastive *while*, following a comma, is typical in the Han CH-EN corpus, and we find examples of this in dictionaries, e.g. the *Oxford Learner's Dictionary of Academic English*. However, other positions and types of punctuations were found in the corpus. For example,

The former emphasizes the importance of the state intervention in economic development. *While* the latter claims that the less state intervention can make the national economy more competitive.

(CH4ESPOL-0257d)

In the example above, the Chinese writer used *while* to contrast two arguments, but he placed the contrastive claim with *while* in an independent sentence. The use of *while* in an independent sentence instead of in the same sentence was not common in the Chinese students' writing, and there were no examples of *while* used in this way by their English counterparts.

Another type of contrastive *while* was the one which was used before the latter clause in a sentence but without a preceding comma. This type is similar to the typical contrastive *while*, and was very common in the Han CH-EN corpus, accounting for approximately one third of the uses of contrastive *while* in the Han CH subcorpus, and around half its uses in the Han EN subcorpus. For example,

It is interesting that the control sample was also translucent *while* the unpasteurized control sample was still cloudy. (EN2MRFS-6004d)

The final type of *while* was the one which was used before the latter clause in a sentence but preceded by a semicolon. This type of *while* only occurred in the Han CH subcorpus. For example,

The former ignores the historical background of state including the state-society relations; *while* the latter neglects the nature of structure and the contribution of the globalization. (CH4ESPOL-0257d)

According to Lea et al. (2014: R25), the semicolon is used "to separate two main clauses, especially those not joined by a conjunction". Contrastive *while* in the example above, however, should be considered a conjunction, so it seems that the semicolon was not used appropriately.

In dictionaries, *whilst* is usually listed as a run-on item under the headword *while*, and they are usually regarded as variants of the same lemma. There is a significant difference in the frequency of *whilst* in the Han CH and Han EN subcorpora. English students used *whilst* significantly more often (0.075 per 1000 words) than their Chinese counterparts. In fact, no contrastive *whilst* was identified in the Han CH subcorpus. This means that only English students but not Chinese students used *whilst* contrastively. For example,

However, changes in the allocation of the male labour force between industry and agriculture do illustrate significant change; Crafts (1994) estimates that male employment in agriculture fell from 53% to 29% between 1760 and 1840, *whilst* male employment in industry rose from 24% to 47% in the same period. (EN1ESECO-0117a)

In the example above, the English student used the item *whilst* to introduce a fact about the increase in male employment in industry, and indicated a contrast with the fact given the preceding clause (about the decrease of male employment in agriculture).

### 5.3.3 The use of *whereas*

As described in 5.2.3, a statistically significant difference occurred in the use of contrastive *whereas* in the Han CH and Han EN subcorpora. Chinese writers used significantly more contrastive *whereas* than their English counterparts. In the *Oxford Learner's Dictionary of Academic English*, *whereas* is simply explained as "used to compare or contrast two facts" in Lea et al. (2014: 900).

The two examples below are typical examples of the use of contrastive *whereas* from the Han CH and Han EN subcorpora. In the first example, the Chinese writer used the contrastive *whereas* to contrast the assumptions concerning the competence motive and achievement motive. In the second example, similarly, the English student employed contrastive *whereas* to contrast the content theories and the process theories. In these cases, *whereas* is equivalent to *while* in that it expresses contrastive meaning (Huddleston and Geoffrey 2002: 737).

The competence motive assumes that people have faith in their own ability to influence the surrounding environment, *whereas* the achievement motive assumes that individuals are devoted to maximizing abilities and achieving set goals. (CH1ESBUS-0271c)

Content theories are context free and assume the situation has little impact, *whereas* process theories assume that personalities have little impact and that people are able to make a logical assessment of likely outcome probabilities when making decisions. (EN4CSBUS-0289b)

When I closely investigated the use of contrastive *whereas*, some variations were found out in the Han CH subcorpus. Firstly, it was misused in place of contrastive *however* or *but*. For example,

One implication of HRT having for organisation of work is that workers have social needs and managers ought to be aware of and respond to it. *Whereas*, to what extent their needs affect organisation productivity and how to deal with informal social power are not explicitly mentioned by Mayo. (CH4ESBUS-0124a)

To be more precise, there is no ambiguity in single words or the surface structure; *whereas*, the semantic scope is indefinite due to other elements, for instance, qualification and negation.

(CH4ESLIN-6058e)

In the first of these examples, the Chinese writer tried to point out the weakness of Mayo's viewpoint, mentioned in the preceding sentence. *Whereas* indicates a counter-argument to some extent, but according to Swan (2005: 139) it is used to balance two facts or ideas, but do not contradict each other. Therefore, it seems that contrastive *however* rather than contrastive *whereas* should have been used to express the relationship between the two sentences. The second example from another Chinese student seems to make a similar mistake. The first clause of the sentence emphasizes the characteristics of ambiguity, while the second clause turns to the characteristics of semantic scope as indefinite, expressing a counter sense to some extent. For this reason, contrastive *but* might have been a more appropriate choice than contrastive *whereas*.

With regard to the position of the contrast *whereas*, there were three types in the Han CH-EN corpus. The most common type was the one separating two clauses and following a comma, which is also given in an example in Lea et al. (2014). For example,

The competence motive assumes that people have faith in their own ability to influence the surrounding environment, *whereas* the achievement motive assumes that individuals are devoted to maximizing abilities and achieving set goals. (CH1ESBUS-0271c)

The majority of the uses of contrastive *whereas* in both Han CH and Han EN occurred following a comma, as in the example above. Another position was sentence initial, also given in an example in Lea et al. (2014). For example,

*Whereas* the English abortion debate has been dominated by the question of whether or not abortion should ever be justified in law, the more difficult moral questions arise in distinguishing circumstances in which abortion should not be permitted from those in which it should. (CH3ESLAW-0410d)

*Whereas* the decision in *Broadway Cottages* assumed that the application of the maxim 'equity is equality' would result in equal distribution throughout the beneficial class, *Wilberforce LJ* turned to the settlor's intentions for guidance: " [ e ] qual division is surely the last thing the settlor ever intended: equal division among all may, probably would, produce a result beneficial to none ". (EN3ESLAW-0397b)

In the first example, the Chinese writer used contrastive *whereas* in the initial position to show the contrast meaning between legal and moral perspectives on the issue of abortion. In the second example, similarly, the English student employed contrastive *whereas* in sentence-initial position to indicate contrasting viewpoints. This type of contrastive *whereas* occurred more in the Chinese students' writing than in their English counterparts, but the number was very few compared with the first type of contrastive *whereas*, used in the middle of a sentence following a comma.

The final type of contrastive *whereas* was the one that occurred before the latter clause in a sentence but following a semicolon. For example,

Substitutive compensation may refer to the money substitute for value required to perfect a failed duty a trustee promised to deliver; *whereas* reparative compensation may refer to the money required to make good losses occasioned by a trustee's breach of trust, including a trustee's imprudent investment. (CH3ESLAW-0410a)

The example above was from a Chinese student in the subject of Law. Each of the two clauses explains a type of compensation, and the writer showed the contrastive meaning with a contrastive *whereas* in the second clause, following a semicolon. This use of contrastive *whereas* also depends on the writer's understanding of the part of speech or the use of the semicolon. As mentioned when discussing contrastive *while*, the semicolon is used "to separate two main clauses, especially those not joined by a conjunction" (Lea et al. 2014: R25). Contrastive *whereas* is a conjunction, which means it might be better to replace the semicolon with a comma, or to replace *whereas* with another contrastive transition such as "on the other hand".

#### **5.3.4 The use of *on the other hand***

As seen in Figure 5.3 in the section 5.2.3, Chinese writers in the Han CH-EN corpus used statistically significantly more contrastive *on the other hand* than their English counterparts (0.206 vs. 0.037 per 1000 words). For example,

*On the other hand*, the other group of people usually works with poor service quality. (CH1ESHLTM-3018d)

Tesco and Asda, *on the other hand*, have a smaller range which allows them to have more of those particular products and therefore rarely go out of stock. (EN1ESAG-6021c)

The first example above is from a Chinese writer, and *on the other hand* is used to show a contrastive relationship between the group of people who delivered poor service and a previously mentioned group of people who delivered perfect service. The second example is from an English writer, and the author contrasts two stores, Tesco and Asda, with Sainsbury. Tesco and Asda have a smaller range of brand types, while Sainsbury has a wider range. The two examples here are typically correct uses of the contrastive *on the other hand*. The English

writers mostly used it in this way to show a contrastive sense. However, *on the other hand* in the Chinese students' writing was not usually used contrastively, but was used to add to an argument instead. For example,

*On the other hand*, Herzberg and Abraham Maslow proposed two content theories based on McGregor's Theory Y.  
(CH1ESBUS-0271c)

This example is a very typical use of *on the other hand* in Chinese students' texts. Here *on the other hand* occurred in the paragraph initial-position, and this paragraph was the first one in a section with the title "ii. MCGREGOR'S THEORY Y". The section before had the title "i. MCGREGOR'S THEORY X". This means that *on the other hand* in the initial position of this section was used to introduce Theory Y, following on from Theory X in the former section. Thus, *on the other hand* did not play the role of indicating a contrastive relation, but it was used to add an argument in the text. This use of *on the other hand* to add an argument is sometimes made more explicitly through the use of words such as *also* and *and*. For example,

In addition, under the British Colonialism, several large international enterprise such as HSBC, Jardine Matheson, and Swire group were well-developed before 1950. *And on the other hand*, the large foreign enterprises did not take away the capital from HK to their country. (CH4ESPOL-0257e)

*On the other hand*, it could *also* deduce that the potential growth of IHG is experiencing saturation (Koch, 2000).  
(CH3CRHLM-3018e)

In the first example, the item *on the other hand* is used to add an argument, rather than to express a contrastive sense. With the word *also* in the sentence, it shows that Hong Kong was in a similar situation to Singapore, as described in

the preceding sentence. In the second example, *on the other hand* following *and* is not used to show a contrastive relation, but adds an argument about how large enterprises dealt with the capital. This type of use of *on the other hand* totally occurred nine times in five texts written by three Chinese students. Attention should be paid to this use because it is incorrect.

The item *on the other hand* was also found in the Chinese students' writing after "firstly" to explicitly add an argument. For example,

*Firstly*, as dividends and tax liabilities are cash transactions, there are risks that IHG would be incapable to pay the proposed dividends to shareholders. *On the other hand*, it also implies that there would be financial problems for IHG to repay the amounts owing in the short term to their suppliers.  
(CH3CRHLT-3018e)

In this example, the sentence with *on the other hand*, about financial problems for IHG does not express contrast with the former sentence, about the risk that IHG will not be able to pay shareholders. The item *on the other hand* in the latter sentence was used to explicitly add an argument, just as the discourse marker "firstly" was used to introduce an argument.

Another relatively fixed collocate for *on the other hand* might be "on the one hand" which might come before it to present a contrastive argument. For example,

There is a dual nature of surplus value in the financial services, therefore, where, *on the one hand* they add no surplus value to money capital but *on the other*, 'the capitalist services they themselves provide do create new surplus value'. (EN4ESBUS-0073d)

The example above is from an English writer who used the short form of “on the other hand”, “on the other”. In the clause with *on the one hand*, the author said that there was no surplus value for the financial services, while in the clause with *on the other*, the author said that new surplus value was created in the services, so there was a contrastive sense.

Surprisingly, it seems that the frame “on the one hand...on the other (hand)” was used appropriately only in the example above in the Han CH-EN corpus. The form “on the one hand” was generally written as “on one hand”, which is not acceptable according to Longman Dictionary of Contemporary English (2014: 829). For example,

*On one hand* the court had limited the possibilities for tax avoidance, by restricting its jurisdiction to sanction variation of the trust instrument, while *on the other* ensuring that settlements created for tax avoidance purposes were allowed to stand on the basis of a lower threshold for certainty. (EN3ESLAW-0397b)

*On one hand*, Porter argues that the integration of existing capabilities and the Internet strategy is essential; *on the other hand*, Tapscott (2001) contends that radical changes of business partnerships and process will happen by the rapid development of ebusiness that shape the ways to conduct businesses. (CH4CSBUS-0291a)

In the two examples above, the linguistic form which collocates with *on the other hand* is “on one hand”, which might not be appropriate. The clauses introduced by “on one hand” and “on the other hand” in the first example from the English student show a contrastive sense, as the preceding sentence indicates that the court’s approach is difficult to reconcile. However, the clauses in the second example from the Chinese student do not show the contrastive

meaning. They simply show the importance of the integration and that the change of business partnership will happen, with no contrast between the two clauses. In fact, no example of the collocation of “on one hand” and “on the other hand” in the Chinese texts was found to show a contrastive meaning. The phenomenon is in line with the finding above that generally Chinese students did not use the item *on the other hand* to indicate a contrast, but used it to add an argument instead. The Chinese students used “on one hand” inappropriately rather more than their English counterparts (7 vs. 4 times respectively). The difference in frequency suggests that the Chinese students might be influenced by language transfer. The equivalent of “on the one hand” and “on the other hand” are “一方面 (yī fāng miàn)” and “另一方面 (lìng yī fāng miàn)”, which are commonly used together.

Another indication of language transfer might be the use of variations of the collocations “on the one hand” and “on the other hand”. The collocation of “on one side” and “on the other side” was also found in the Chinese students’ writing, which can be another equivalent of “一方面 (yī fāng miàn)” and “另一方面 (lìng yī fāng miàn)” in Chinese. The literal translation of the word “方面” is “side”. For example,

*On one side*, investment in joint ventures had a 20.5 per cent rose which had the most important affect on the total fixed asset investments. While, *on the other side*, investment in own shares had a 37.5 per cent fall which had a strong negative effect on total investment. (CH4CRENG-0223d)

In this example, the Chinese writer used “on one side” and “on the other side” to show the contrast between the rise of a 20.5 per cent and the fall of a 37.5 per cent in two types of investment. “On one side” and “on the other side” were not found in English students’ writing and could be a Chinese variation of “*on the one hand*” and “*on the other hand*”.

Other contrasts items such as *but*, *while* and *however* were also found to be used with *on the other hand* in the English students' writing, but not in the Chinese students' texts. For example,

There is a dual nature of surplus value in the financial services, therefore, where, on the one hand they add no surplus value to money capital *but on the other*, 'the capitalist services they themselves provide do create new surplus value'. (EN4ESBUS-0073d)

On one hand the court had limited the possibilities for tax avoidance, by restricting its jurisdiction to sanction variation of the trust instrument, *while on the other* ensuring that settlements created for tax avoidance purposes were allowed to stand on the basis of a lower threshold for certainty. (EN3ESLAW-0397b)

*On the other hand, however*, Elson (1979) and Dobb (1971) play down the exploitation interpretation and Dobb (1973) interprets the labor theory of value as 'an explanation of equilibrium ... prices in a capitalist economy' (Elson 1979). (EN4ESBUS-0073d)

The first two examples have been discussed earlier; the clause with *on the other hand* indicate a contrast with preceding clause. Similarly, in the third sentence, the clause with *on the other hand* shows a different interpretation of the labour theory of value to that of Roemer's in preceding sentence, evidently indicating the contrastive sense. In the three examples, the reason English writers used contrasts *but/while/however* with the contrast *on the other hand* might be that they wanted to emphasize the contrastive sense in the clause with one more contrast item. The Chinese students were not found to do this. When I examined the three collocations in the British Academic Written English

(BAWE) corpus and in the Written book and Periodicals component of the British National Corpus (BNC), they were found to occur in both corpora. The following figure shows their frequencies.

Collocations	BAWE	BNC
	Mean per million words	
<i>but on the other hand</i>	2.04	2.05
<i>while on the other hand</i>	0.36	0.15
<i>on the other hand however</i>	1.56	0.10

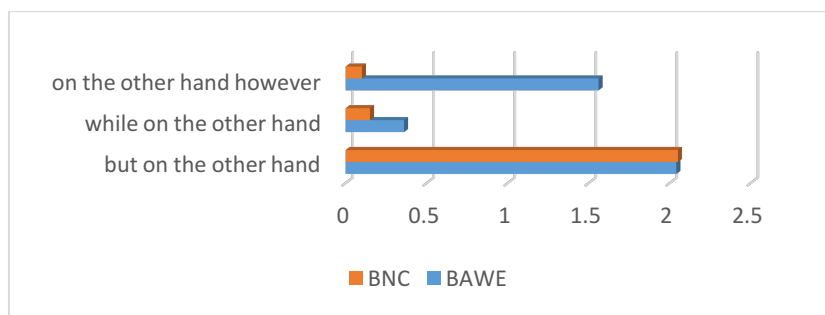


Figure 5.4: three collocations with *on the other hand* in BAWE and BNC

As shown in the Table and Figure 5.4, the collocation of “on the other hand” with “however” and “while” had different frequencies in the two corpora but are not as frequent as the collocation with “but”. The collocation of “but on the other hand” occurs more frequently in the BAWE and the BNC, and the frequencies are almost the same in the two corpora. In other words, writers in the BAWE corpus and writers of books and periodicals in the BNC seem to have the same level of acceptance for the collocation of “but on the other hand”.

The last substantial difference in the use of contrastive *on the other hand* by the Chinese and English students concerns its position in the sentence. The Chinese students used *on the other hand* considerably more often in sentence-initial position than their English counterparts (61% vs. 7% respectively). For example,

*On the other hand*, the other group of people usually works with poor service quality. (CH1ESHLTM-3018d)

*On the other hand*, however, Elson (1979) and Dobb (1971) play down the exploitation interpretation and Dobb (1973) interprets the labor theory of value as 'an explanation of equilibrium ... prices in a capitalist economy' (Elson 1979). (EN4ESBUS-0073d)

In the two examples discussed earlier in this section, the contrastive *on the other hand* also occurred in the sentence-initial position. The sentence-medial position of *on the other hand* occurred considerably more frequently in the English students' writing than in the Chinese students' texts (93% vs. 39%). For example,

The data connection, *on the other hand*, needs more complex rules due to the variety of data types transferred. (EN4DSENG-0146c)

Social needs, *on the other hand*, include the need for affiliation, because social needs refer to the "need for satisfactory and supportive relationships with others" (Fincham & Rhodes 2005: 195). (CH1ESBUS-0271c)

A theory that is derived from a problem can determine the method; *on the other hand*, the data that is generated from certain methods can modify the theory or the problem in return. (CH4ESSOC-0350c)

The position in the first two of these examples is the common one, between the subject and the verb, with two commas. In the third example *on the other hand*

occurs in the second clause of the sentence, following a semicolon. This position only occurs in the Chinese students' writing.

### 5.3.5 The use of *in contrast*

According to section 5.2.3, there is a statistically significant difference in the relative frequency of the item *in contrast* in the Han CH and Han EN subcorpora. The Chinese students used *in contrast* significantly more often than their English counterparts (0.070 vs. 0.012 per 1000 words). The item *in contrast* is generally used in the sentence-initial position. For example,

Content theories assume that all people have the same set of needs, and that these needs motivate behavior (Fincham & Rhodes 2005: 193) *In contrast*, process theories assume that all humans have different needs, and focus on how cognitive processes, or "the way we take in and process information about ourselves and the world," (Fincham & Rhodes 2005: 193) influences these needs. (CH1ESBUS-0271c)

To Denning LJ, this would be highly appropriate, although it is unlikely his own judgement would have declined the opportunity to comment on the morality of reversing decisions for tax avoidance consequences. *In contrast*, if Simonds LJ continued to exhibit the strict interpretation of precedent as highlighted above, it is unlikely that the concept of fiduciary duty would have entered into the judgement. (EN3ESLAW-0397b)

In the first example above, the Chinese writer used the item *in contrast* in the sentence-initial position to introduce the assumption that all human have different needs. This shows the contrast with the assumption in the preceding sentence that all people have the same set of needs. In the second example,

similarly, the English writer used the item *in contrast* in sentence-initial position to introduce a fact about Simonds LJ, showing the contrast with a fact about Denning LJ in the preceding sentence. Almost all the *in contrast* items in the Han CH-EN corpus are used in sentence-initial position.

One non-sentence initial use of *in contrast*, however, was identified in the Han CH subcorpus. It occurs between two clauses in a sentence, following a semicolon:

The degree of foreign accent of the students highly correlated with AOL but not the LOR factor; *in contrast*, TOEFL results corresponded with LOR of those students but not the age reason. (CH4ESLIN-6058a)

In the example above, the Chinese student used the item *in contrast* following a semicolon to introduce the fact that TOEFL results corresponded with LOR, which shows the contrast with the fact in the preceding clause that the degree of foreign accent did not correlate with LOR. The use of *in contrast* in this way only rarely occurs in the Han CH subcorpus, and not at all in the Han EN subcorpus.

### **5.3.6 The use of *at the same time***

The item *at the same time* is one of the transition markers in the category of comparison. There was no significant difference in its frequency in the Han CH and Han EN subcorpora. Neither the Chinese nor the English writers used the item frequently; the absolute frequency was five and three times in each subcorpus. However, there was a difference in the use of the item in the two subcorpora. For example,

We should have a balanced diet to become healthy. *At the same time*, we need to be careful that we are taking right amount of each kind of nutrient. (CH2MRFS-6008f)

However, *at the same time* 'flexibility will be taken for granted' (1999: 80) and companies will employ contract employees 'embedded in flexible networks, rising to each new challenge with a different constellation of knowledge-based workers' (1999: 146). (EN4ESBUS-0073a)

In the first example, the Chinese writer used the item *at the same time* to introduce another factor of keeping healthy, with a slightly contrastive sense. In the second example, the English student employed *at the same time* with the contrast item *however* to introduce the contradictory issue of flexibility. In fact, all the uses of *at the same time* as a transition marker in the English students' writing were with *however*. On the other hand, in the Chinese students' writing the transition marker *at the same time* was not used with other contrast items (e.g. *however*) but was used independently to show a contrastive sense.

### **5.3.7 the use of *meanwhile***

The item *meanwhile* can be used with reference to time, but in the current research it was investigated in cases when it was "used to compare two aspects of a situation" (Lea et al. 2014: 504) because it only functioned as a transition marker with this sense. The item *meanwhile* in this case is in the category of contrast. For example,

Contrarily, Flege et al. (1995) related the effects of gender with age of learning in his experiment on Italian speakers of English in Canada... *Meanwhile*, many linguists did not find any significant contribution of gender to the foreign accent such as

Olson & Samuels (1973), Purcell & Suter (1976) and Elliott (1995) (all in Piskeal. 2001). (CH4ESLIN-6058a)

In the example above, the Chinese writer used the item *meanwhile* to introduce an argument about the influence of gender on foreign accents, in contrast to the preceding argument that there was a close relationship between gender and age. This transition marker was rarely used by the Chinese writers, and there was no significant difference in the frequency of the item in the Han CH and Han EN subcorpora. Specifically, the Chinese writers used the item 5 times in their writing, and the English students did not use it as a transition marker at all.

### **5.3.8 The use of *alternatively***

Although there was no significant difference for the frequency of the item *alternatively* between the Han CH and Han EN subcorpus, there were characteristics for the use of the item. Firstly, most contrast items occurred more in the Han CH subcorpus, but for *alternatively*, the English writers used it around three times as frequently as their Chinese counterparts (0.029 vs. 0.010 per 1000 words). In fact, the English writers used *alternatively* more frequently than the general frequency (0.012 per 1000 words) of students' using it in the BAWE corpus and more than the general frequency (0.010 per 1000 words) of experts' using it in the BNC (in the subcorpus of written books and general periodicals). Secondly, for the distribution of *alternatively* in the texts, it occurred in four English students' texts, while it only occurred in one Chinese student's text.

There was, however, similarity for the use of *alternatively* in the two subcorpora. It occurred in the sentence-initial position in both Han CH and Han EN subcorpora and was "used to introduce a suggestion that is a second choice or possibility" (Lea et al. 2014: 29). For example,

McGregor's Theory X takes on Hobbes' perspective of control, and assumes that people are "rational economic men" (Fincham & Rhodes: 202) who require rewards or even coercion to motivate them to work. *Alternatively*, McGregor employs Rousseau's viewpoint of engagement in Theory Y, and deduces that people are "complex men, possessing a bundle of social and self-actualizing needs" (Fincham & Rhodes: 202). (CH1ESBUS-0271c)

Depending on the configuration of the Master Scorer, the results will appear almost instantly on the main scoreboard. *Alternatively*, the results can be queued and displayed in a timely and organized manner. (EN4DSENG-0146c)

In the first example from the Chinese student, the *alternatively* was used in the sentence-initial position and was used to introduce an argument about "Theory Y", showing a contrast with the preceding argument about "McGregor's Theory X". Similarly, in the second example from the English writer, the *alternatively* was used in the sentence-initial position and was used to introduce an argument about the queuing and display of results, showing a contrast with the preceding argument about how the results appeared.

### **5.3.9 The use of *by contrast***

The item *by contrast* has a similar meaning and function to *in contrast* (see 5.3.5), but there was no statistically significant difference in relative frequency between the Han CH (0.012 per 1000 words) and Han EN (0.007 per 1000 words) subcorpora. The occurrences of the item *by contrast* are lower than the item *in contrast* in the Han CH (0.070 per 1000 words) and in the Han EN (0.012 per 1000 words) subcorpora.

Generally, Chinese and English students used the item *by contrast* rarely in the two subcorpora, and tended to use it in sentence-initial. For example,

Motivator factors are those producing good feelings in the work place and thus lead to high levels of job satisfaction, motivation and performance, which include achievement, recognition, responsibility, advancement, growth and the work itself (Huczynski and Buchanan 2001). *By contrast*, hygiene factors are those remove, prevent job dissatisfaction but do not contribute to motivation and performance, which include pay, company policy, supervision, status, security and working conditions (Ibid, 2001). (CH4ESBUS-0264a)

As mentioned earlier in relation to Epistemic modality, Palmer's model is important because of its attempt to achieve cross-lingual adequacy, but simultaneously illustrates the tendency for semantically ambiguous and confusing terms to proliferate in this field of linguistics. *By contrast*, De Haan's (1997) endeavours to develop a model of the relationship between modality and negation across languages, results in the narrow selection of specific modals forms and necessary exclusion of many of the instances of modality discussed here. (EN4ESLIN-6038a)

In the first example above, the Chinese writer used the item *by contrast* to introduce the explanation of hygiene factors that do not contribute to motivation and performance, showing a contrast with the motivator factors that lead to high levels of job satisfaction, motivation and performance discussed in the preceding sentence. In the second example, similarly, the English student used the item *by contrast* to introduce the Haan's model of the relationship between modality and negation, indicating a contrast with Palmer's model.

The item *by contrast* was also identified in non-sentence initial positions. For example,

Academics and researchers proposed different views about this issue, Bradfield and Crockett (1995) concluded that there is little evidence to suggest that employees' attitudes bear any simple or appreciable relationship to performance on the job. However, *by contrast*, Herzberg et al (1957) provided a quite different conclusion: there is frequent evidence to suggest that positive job attitudes are favourable to increased productivity.  
(CH4ESBUS-0264a)

In the example above, the Chinese student used the item *by contrast* following the contrast *however* to introduce a different conclusion compared with the conclusion in the preceding sentence. The inclusion of with *by contrast* might be an attempt to emphasize the contrastive use of *however*. It should be noted that the use of *by contrast* with *however* only rarely occurs in the Han CH subcorpus, and not at all in the Han EN subcorpus. The use of two contrasts together, however, seems unnecessary, and this combination was not found in the BNC (text type: written books and periodicals).

### 5.3.10 The use of *on the contrary*

The occurrence of the item *on the contrary* in the Han CH (0.043 per 1000 words) subcorpus is higher than in the Han EN (0.017 per 1000 words) subcorpus, but there is no statistically significant difference ( $p > 0.05$ ). *On the contrary*, as a contrast, is “used to introduce a statement that says the opposite of the last one” (Lea et al. 2014: 170). More specifically, according to *Collins Cobuild English Dictionary for Advanced Learners* (2001: 328), “you use *on the contrary* when you have just said or implied that something is not true and are going to say the opposite is true”. It can be noted that both dictionaries emphasize the opposite sense and show that what *on the contrary* introduces is

a statement or argument which contrasts to the previous one, and not just presenting contrastive facts between two pieces of discourses. However, *on the contrary* was not identified in the Han CH-EN corpus which indicates the opposite sense. Instead it is simply used to indicate a contrast but without the opposite sense. The first type of inappropriate use of *on the contrary* in the Han CH-EN corpus might be replaced by the item *however* or *rather*. For example,

Several studies (Worsfold, 1999; Jameson, 1999; McGunnigle, 2000) considered the sector has been premised on a low skills model or poor HRM practice. Price (1994) has a similar view, stating 'the hotels and catering industry remains fragmented with relatively little concentration of ownership and a death of the sophisticated human resource management practice' (pg 57). *On the contrary*, there are also optimistic views such as Hoque (1999) and Lashley (1998). More recently, whether HRM strategies should be 'best fit' or best practice' is extensively debated (Nickson, 2002). (CH2ESHLTM-3018c)

This is because the class of personal characteristics referred to in the article, such as sex or race, did not reflect the position of the appellants nor anyone else who has had their fingerprints, DNA samples and profiles retained after a criminal investigation. *On the contrary* it was 'simply reflecting historical fact'. (EN1CRLAW-0122a)

In the first example, the Chinese writer used the item *on the contrary* to introduce the fact that there are also optimistic views in addition to pessimistic ones. The following sentence can also show that what the writer attempt to do is to present the fact that there are different views from other researchers. However, it seems that the sentence following the item *on the contrary* does not show the previous argument is not true and it does not show that the writer is attempting to say that the "optimistic view" is true. Therefore, it might be argued

that the use of the item *on the contrary* in this context is inappropriate. It might be better to use the item *however* which just shows the contrast, but does not show that the previous fact is not true. Similarly, in the second example above, the English writer used the item *on the contrary* to show the view on what the class of personal characteristics reflected, which implied the preceding argument is not correct, but the “historical fact” did not show it is the opposite of what is mentioned in the preceding sentence. Therefore, the use of *on the contrary* might not be correct in this context, and it might be better to change it into the item *however* or *rather* because it just shows the different view on what the class of personal characteristic reflected without the opposite sense between “historical fact” and what mentioned in the preceding sentence. An example with similar contrastive relationship using *rather* has been identified in the *Oxford Learner’s Dictionary of Academic English*.

Race is not a biological fact. It is, *rather*, a historical outcome of how people of different ancestries have lived with one another. (Lea et al. 2014: 661)

The example above is similar to the example by the English writer presented previously as the key words “race” and “historical outcome” show. The item *rather* is used to introduce the argument that the “race” is a “historical outcome”, which shows the contrast to the preceding argument, but the “historical outcome” is just different from the “biological fact” instead of the opposite argument. Therefore, the use of the item *rather* is more appropriate than *on the contrary*.

The second type of inappropriate use of *on the contrary* in the Han CH-EN corpus might be replaced by the item *by / in contrast*. For example,

Although there was a obvious drop from 2000 to 2001, the debtor collection days were still above 70 days. *On the contrary*, the creditor payment days were constantly below 30

days, and the shortest payment days occurred in 2002 which was only 16.9 days. (CH4CRENG-0223d)

In the example above, the Chinese student used the item *on the contrary* to introduce the fact that creditor payment days, the other kind of days, were constantly “below” 30 days, which is in contrast to the fact in the preceding sentence that the debtor collection days were still “above” 70 days. It can be noted that the contrast is between two different types of days with characteristics of “below” and “above” a certain level, but this does not mean that the writer used the discourse following *on the contrary* to show the opposite argument to the preceding one. In other words, the relationship between “above 70 days” of debtor collection days and “below 30 days” of creditor payment days is just a contrast between the two facts, instead of two opposite arguments. Therefore, it seems better to replace the item *on the contrary* with “by/in contrast” as it shows the contrast between the two facts, instead of showing an opposite argument to the one in the preceding sentence.

In short, Chinese students do not use the item *on the contrary* commonly and English students use it rarely. For both group of students, it is difficult for them to use it appropriately as what the item introduces does not purely show the contrast but also show the opposite argument.

### 5.3.11 The use of *rather*

The occurrence of the contrast *rather* in the Han CH subcorpus (0.028 per 1000 words) is slightly lower than in the Han EN subcorpus (0.034 per 1000 words). In other words, English students use *rather* slightly more frequently than their Chinese counterparts, but there is no statistically significant difference ( $p > 0.05$ ). As a contrast, *rather* is “used to introduce an idea that is different or opposite to the idea that you have stated previously” (Lea et al. 2014: 661). According to *Collins Cobuild English Dictionary for Advanced Learners* (2001: 1272), it is used “especially when you are describing a particular situation after saying what

it is not". It may be used in the sentence-initial position in the Han CH-EN corpus. For example,

Since no reasons are required, there is no dispute as to the circumstances where abortion is allowed, such as foetal disability. *Rather*, regulation is achieved through the recognition of 'important State interests' which are capable of limiting the right of abortion. (CH3ESLAW-0410d)

The region - however defined - must not attempt to shut out the rest of the world in a 'reactive' and closed response to issues of globalisation. *Rather*, regionalism should pursue an embracing response in order to harness the forces of the contemporary world to the benefit of the region. (EN4ESPOL-0255d)

In the first example above, the Chinese student used sentence-initial *rather* to introduce an idea that regulation is achieved, which shows the contrast to the argument in the preceding sentence that there is no dispute as to the circumstances. In the second example, the English writer used sentence-initial *rather* to introduce an argument that regionalism should pursue an embracing response, which shows the contrast to the preceding argument that the region must not shut out the rest of the world. It can be noted that in both examples there is negation in the sentence before the one introduced by *rather*, which is a characteristic for the context of *rather* as *Collins Cobuild English Dictionary for Advanced Learners* (2001) describes.

The item *rather* is also identified in non-sentence initial position in the Han CH-EN corpus. For example,

Under this political structuration, 'the shaping of the playing field of politics itself is increasingly not within insulated units ....

*rather* it derives from a complex congeries of multilevel games played on multilayered institutional playing fields."  
(CH4ESPOL-0257d)

'Empowerment may not in practice dilute overall management control: *rather* it can reconstitute the nature of such control'  
(Wilkinson 1997). (EN2ESHLTM-3040d)

In the first example above, the Chinese writer used the non-sentence initial *rather* to introduce a contrastive relation between the “insulated units” and “a complex congeries”. In the second example, similarly, the English writer used the non-sentence initial *rather* to introduce the argument that empowerment can play the role of reconstituting the nature of the control, which shows the contrast with the argument in the preceding sentence that empowerment may not dilute management control.

Non-sentence initial *rather* was also used with the contrastive *but* in the Han CH-EN corpus. For example,

It can be said that there is no single discrete productive or perceptive feature that will predict whether a sound falls into what we feel to be the discrete categories of fortis or lenis, *but rather* we can think of various phonological features acting on multiple continua which the listener uses to reach a decision about the category of fortis or lenis. (EN4ESLIN-6044a)

In the example above, the English writer used the item *rather* following the contrastive *but* to introduce an argument about various phonological features, showing the contrast with the argument about productive or perceptive features. The item *rather* following *but* might be used to emphasize the item *but* which as a conjunction to connect two clauses to show the contrastive sense (Quirk 1985: 935).

As Lea et al. (2014: 661) show, *rather* is an adverb. It was, however, sometimes used as a conjunction instead of an adverb in the Han CH-EN corpus. For example,

However, that is not to say that tort law protects equitable property rights, *rather*, it is to treat our breach in question as an "equitable wrong". (CH3ESLAW-0410a)

This essay will not be a study on the theories of justice, *rather* it will focus primarily on the practice of law and it's relation to justice. (EN3ESLAW-0411a)

In the first example above, the Chinese writer used the item *rather* as a conjunction to connect two clauses and show the contrastive sense. In the second example, similarly, the English writer used the *rather* as a conjunction to introduce the argument that the focus of the study is on the practice of law, showing the contrast with argument in the preceding clause. It should be noted that the use of *rather* as conjunction is rare in the Han CH-EN corpus.

### 5.3.12 The use of *conversely*

The occurrence of the contrast *conversely* in the Han CH subcorpus (0.022 per 1000 words) is slightly lower than in the Han EN subcorpus (0.035 per 1000 words). In other words, English students use *conversely* slightly more frequently than their Chinese counterparts, although the difference is not statistically significant ( $p > 0.05$ ). As a contrast, *conversely* is used "in a way that is the opposite of something" (Lea et al. 2014: 174) in the Han CH-EN corpus. It was identified that *conversely* tends to occur in sentence-initial position. For example,

If the fat content is too low, there will not be enough fat to enclose the air bubbles and form the foam. *Conversely*, if the fat content is too high, the fat globules come into contact too easily, move against each other and form butter granules before the air can be incorporated to form the foam.  
(CH2MRFS-6008d)

Furthermore, the CFDT endeavoured to distance itself from the political sphere following self-criticism for its support for the French Socialist Party (PS) in the 1970s and early 1980s. *Conversely* the CGT, until recently, maintained direct links with the PCF and its 'ideological position has remained closely wedded to the Communist Party' (Financial Times 1999).  
(EN4ESBUS-0073c)

In the first example above, the Chinese writer used sentence-initial *conversely* to introduce the result if the fat content is too high, in contrast to result with the fat content is too low. In the second example, similarly, the English writer used sentence-initial *conversely* to introduce the fact that the CGT had direct association with the French Communist Party (PCF), in contrast to the fact that the CFDT tried to distance itself from the political sphere. In both examples, what the item *conversely* introduces is the opposite of what is mentioned in the preceding discourse.

It was also identified that the item *conversely* is used with the addition *and* in the Han CH-EN corpus. For example,

Increasing the carbon content results in: <list>Increased strength Increased hardness Brittleness Decrease in ductility </list> *And conversely*, low carbon steels have the following properties: <list>Decreased strength Less hardness Less brittle More ductile</list>. (EN1MRENG-0249i)

In the example above, the English writer used *conversely* following *and* to introduce the properties of low carbon steels, in contrast with the properties of steel with increased carbon content. The item *and* indicates the addition of a fact, while the contrast *conversely* shows that there is a difference between the facts.

## **5.4 Discussion of Contrasts**

Based on the findings presented in the last section, the characteristics of the use of contrasts are presented in this section, showing the similarities and differences between the writing by Chinese and English students. The first two subsections consider how students employ contrasts across disciplines and genres and discuss possible reasons for this. Then the third section focuses on the features of specific contrastive items used by Chinese and English students.

### **5.4.1 Contrasts across the disciplines**

Both L1 groups used more contrasts in Law and Business than in Biology and Engineering, which is consistent with earlier studies of research articles that found fewer contrasts in the sciences (Peacock 2010), particularly in those disciplines where there is greatest consensus (Cao and Hu 2014).

Table 5.2: Contrasts across four disciplines in Han CH-EN corpus

Discipline	CH	EN	P-value
	Mean per 1000 words		
Law (LAW)	4.284	4.761	0.701
Business (BUS)	4.071	3.899	0.821
Food Science (FS)	3.455	3.188	0.767
Engineering (ENG)	2.385	2.713	0.556
Biology (BIO)	2.232	2.425	0.710

In my study, the sciences were found to use considerably fewer contrasts than the non-sciences. The disciplines of Biology, Engineering, and Food Science contain substantially fewer contrasts than Law and Business for both L1 groups (see Table 5.2). For instance, the frequency of contrasts in Biology is almost half lower than in Law, for both Chinese and English students. This finding is in line with that of Peacock (2010: 21), who compared the use of contrast in science and non-science disciplines, although he examined fewer different contrastive items (9 items as opposed to my 14), and the overall frequency of contrast items was lower than in my research. Peacock reported statistically significant differences between the science and non-science disciplines (2.426 vs. 3.172 per 1000 words), and found that all four non-science disciplines contained higher frequencies of contrastive items than all four sciences disciplines. The highest frequency occurred in the discipline of Psychology, at around twice that of Chemistry. The extent of the difference was similar to that between Law and Biology in my study.

My findings are also in line with Hyland (2005) who investigated transitions across disciplines (including the categories of additions, comparison and consequence) in students' dissertations. Hyland found that soft-knowledge disciplines employed more transitions. For example, the frequencies of transition markers in Publication Administration and Applied Linguistics (9.78 and 9.51 per 1,000 words) were substantially higher than in Electronic

Engineering and Biology (7.43 and 8.66 per 1,000 words). This was taken to suggest that in the soft fields writers need to interpret their arguments more explicitly.

The main reason for the less frequent use of contrasts in the sciences might be due to the characteristics of these disciplines. Becher and Trowler (2001: 36) point out that the nature of knowledge in “hard pure” and “hard applied” disciplines is “cumulative, atomistic (crystalline/tree-like); concerned with universal, quantities, simplification; impersonal” and “pragmatic (know-how via hard knowledge); concerned with mastery of physical environment”. Therefore, science disciplines contain fewer arguments. In the sections of methodology, results and conclusions, the writers tend to employ a more descriptive or narrative style. In contrast, Becher and Trowler point out that the “soft-pure” and “soft-applied” disciplines embody the features of “reiterative; dispute over criteria for knowledge verification and obsolescence; concerned with particulars qualities, complication; personal; lack of consensus over significant questions to address; results in understanding / interpretation” and “functional; utilitarian (know-how via soft knowledge)”. Hyland (2005: 170) also points out that soft fields are “interpretive and produce discourses which often recast knowledge as sympathetic understanding, promoting acceptance in readers through an ethical rather than a cognitive progression.” As a result, non-science disciplines contain more argumentation, which needs more contrasts. In short, the sciences or hard domains are more narrative and descriptive, so they rely on fewer use of contrasts, while non-sciences or soft disciplines are more argumentative, so they rely on more use of contrasts.

Table 5.3: Average visuals of sciences and non-sciences in the Han CH-EN

	Tables	Figures	Formulae	Lists	Listlikes
Sciences	2.0	4.4	13.3	1.8	4.4
Non-sciences	0.3	0.3	0.0	0.0	2.9

Furthermore, the different use of visuals and lists, as Table 5.3 shows,

may be another reason why Law and Business (non-sciences) contain considerably more contrasts than Biology, Engineering and Food science (science disciplines).

In the Han CH-EN corpus, the sciences (52 texts from Biology and Engineering) contain considerably more visuals than the non-sciences (28 texts from Law and Business) in terms of tables, figures, formulae, lists and listlikes. For example, text 0434a, a Biology text from a Chinese student at undergraduate level 3, contains 22 figures, which is more than in any text in Law or Business. The use of visuals and lists is commented on positively by lecturers since they generally consider this use is helpful for students answering assignment questions (Leedham 2015). It is arguable that the greater use of visuals may lead to the fewer use of contrasts. Figure 5.5, for example shows an excerpt with visuals from a Methodology Recount text, written by an English Biology student (ID 0035a). The proposition or argument in the text is related to a comparison of statistics, and the comparison is achieved through the use of items such as “greater” and “contradicts”, instead of contrastive discourse markers.

The values in figure 3 show that a greater amount of ONPG is hydrolysed to o-nitrophenyl and D-Galactose per minute per cell in the case of p53 than lamin. This implies that the interaction between Y187-SV40 and AH109-p53, is much greater than that between Y187-SV40 and AH109-lamin. This contradicts with the results in figure 3, which implied more interactions with lamin.

Table indicating the level of  $\beta$ -galactosidase produced for each protein pair.

	$\beta$ -galactosidase units
<b>Lamin</b>	0.5105
	0.2817
<b>p53</b>	5.4965
	6.2118

*Figure 3. Table of  $\beta$ -galactosidase units*

Figure 5.5: An excerpt from a text using visuals

In contrast, if they contain no visual elements, texts seem more likely to involve the use of contrastive items. The following example is from an Essay written by a Chinese Business student. The writer used the item *in contrast* to introduce the assumption that all people have different needs, in contrast to the assumption in the preceding sentence that all people have the same set of needs. Since it involves a comparison of two abstract theories, the contrastive relationship cannot be achieved through use of language items such as “greater” and “contradicts”, as in the last example, but needs to be signalled by the contrastive discourse marker *in contrast*.

Content theories assume that all people have the same set of needs, and that these needs motivate behavior (Fincham & Rhodes 2005: 193) *In contrast*, process theories assume that all humans have different needs, and focus on how cognitive processes, or "the way we take in and process information about ourselves and the world" (Fincham & Rhodes 2005: 193) influences these needs. (CH1ESBUS-0271c)

The examples suggest that where there is no visual element, comparisons tend to be made using contrastive items. In contrast, where there is a visual element the comparison can be made without using contrastive items.

The greater use of visuals and lists in science disciplines indicates the greater need of them in these disciplines; this is easy to understand since the sciences use quantitative methods. On the other hand, the non-sciences disciplines contain considerably smaller numbers of visuals and lists since they tend to rely on qualitative analysis. The different in the use of visuals and lists may explain why, in my study, Law and Business (non-sciences) contain considerably more contrasts than Biology and Engineering (sciences).

### 5.4.2 Contrasts across the genre families

The use of transitions varies across genre families. Academic genres are classified in terms of their similarities and differences, and genre theorists increasingly distinguish them by clusters of specific rhetorical features, e.g. features of metadiscourse (Hyland 2005). As a key perspective of genre analysis, metadiscourse indicates how writers choose language to achieve their writing purpose, how they make assumptions about their readers' interests and needs and purposes for reading, and how they conduct interaction with their audiences.

Previous studies like those Hyland have investigated transitions in terms of genre, but their genres classification are different from the ones I used in my study. Moreover, transition markers do not seem to have been investigated specifically in terms comparison, consequence, and addition. In my study, the category of comparison was divided into two sub-categories, and I refer to the 13 student genre families categorized by Nesi and Gardner (2012) according to their social functions. It was found that for both groups of students, the more discursive genre families of Critique and Essay used more contrasts than the more technical genres of Methodology Recount and Explanation (see Table 5.4). The reasons for the different frequencies of contrasts in these genres might be a reflection of their social functions.

Table 5.4: Contrasts in the four genre families

Genre	CH	EN	P-value
	Mean per 1000 words		
Critique (CR)	4.522	3.690	0.435
Essay (ES)	4.473	3.751	0.147
Methodology Recount (MR)	2.961	2.773	0.763
Explanation (EXP)	2.349	2.373	0.831

The social functions of Critique and Essay are distinct from those of the Methodology Recount and Explanation. Nesi and Gardner (2012: 94) point out that the central purpose of Critiques is to demonstrate and develop students' ability to evaluate and / or assess the object of study. In the Social Sciences, students are expected to evaluate research articles, theories and techniques, in the Humanities, students write reviews of literary and artistic output, and in the Physical and Life Sciences students need to evaluate equipment and systems (Gardner 2009). One of two key stages of the genre is pointed out in an interview of a lecturer, reported in Nesi and Gardner (2012: 95): "It should relate this to the real world and academic disputes and then reach an evaluative conclusion". This suggests that to meet the writing requirement, discourse markers with a contrastive sense will be key rhetorical devices in the evaluating, assessing or reviewing process.

Similarly, the central purpose of Essays involves showing and enhancing students' capacity to construct a coherent argument. The awareness that the body of an essay consists of arguments is shared by both lecturers and students, as Nesi and Gardner (2012) point out. The prevalence of arguments can be noticed in the stages of the six types of Essay described in Nesi and Gardner's study. For instance, in the Discussion Essay, the body contains alternative arguments which might be pros and cons, or alternative positions. This involves comparisons, and contrastive items will probably be needed to achieve this function.

Furthermore, variation in the amount of use of visuals and lists may be another reason for differences in the amount of use of contrasts across genres.

Table 5.5: Average visuals and lists in genres in the Han CH-EN

Genres	Tables	Figures	Formulae	Lists	Listlikes
Critique + Essay	0.5	1.1	1.1	0.2	0.6
Methodology Recount + Explanation	2.1	2.2	11.6	1.2	4.9

As Table 5.5 shows, the number of visuals in the less discursive genres (54 Methodology Recounts and Explanations) is many times larger than in the discursive genres (72 Critiques and Essays). This suggests that both L1 group writers tend to use substantially more visuals and lists in the less discursive genres than in the discursive genres in the Han CH-EN corpus. The greater use of visuals and lists in Methodology Recounts and Explanations indicates that these two genres are more numerical. Arguments or propositions based on a comparison of statistics may not need contrastive items (see Figure 5.5 for the example of a Methodology Recount). In contrast, Essays and Critiques contain fewer visuals and lists (see the examples in the Section 5.4.1), which indicates that the two genres contain less numerical data but involves more discussion of theories. The discussion of theories may rely more heavily on contrastive items that mark contrastive relations. Therefore, the discursive Critique and Essay genres with fewer visuals and lists need to make greater use of contrasts.

### 5.4.3 Specific contrastive items

After the discussion on how contrasts vary across disciplines and genres, this section considers the use of specific contrastive items by Chinese and English students. My research investigated 14 specific contrastive items, adding two more contrastive items (*meanwhile* and *whilst*) to Hyland's list (2005: 220). The discussion primarily focuses on the frequency of these items in the two subcorpora and the linguistic patterns of individual items.

Some previous studies have suggested that Chinese student writers use more contrastive items (Lei 2012; Chen 2006). And others have found that they use

fewer of them (Leedham 2015). The findings from the Han CH-EN corpus tend to support the early study of Milton and Tsang (1993) regarding the use of a closely matched corpus and build on the previous studies since specific contrastive items are examined in detail.

A number of contrasts were found to differ significantly in terms of their frequency in the writing of Chinese and English students (see Section 5.2.3), although there was no significant difference in terms of the overall frequency of the contrastive marker category. Four items (i.e. *while*, *on the other hand*, *whereas* and *in contrast*) were used significantly more frequently by the Chinese writers than their English counterparts, while two items (i.e. *however* and *whilst*) were employed significantly more frequently by the English writers than their Chinese counterparts. Some of these results were not recorded in previous studies which did not use closely matched corpora, or did not employ the same methodologies. For example, Leedham (2015) compared the writing of Chinese and English students, but used keywords analysis, so her study only compared a few transitions with high frequency, such as *on the other hand* and *however*.

The item *on the other hand* was used over five times more frequently by Chinese writers than their English counterparts (0.206 vs. 0.037 per 1000 words). This is almost in line with Leedham's finding (2015: 44) that Chinese students used *on the other hand* around three times more frequently than English students (0.193 vs. 0.081 per 1000 words). The frequency of *on the other hand* in the Han CH is almost the same as that recorded by Leedham, while the frequency of *on the other hand* in the Han EN is less than half that recorded in Leedham's study. Generally, both studies found that Chinese students used the contrastive item substantially more than English students. The main reason for the greater use of the item *on the other hand* by Chinese students might be that Chinese students used it incorrectly as the equivalent of the Chinese “另一方面 (lìng yī fāng miàn)” (translated as “the other side of the an issue”), without full awareness of the contrastive sense. It was found that in

the Chinese students' writing, *on the other hand* was generally not used in this way and was mostly used to add an argument, as shown in the pattern "Firstly...On the other hand" in two adjacent sentences (see the example in 5.3.4).

In contrast, English writers mostly used *on the other hand* signal a contrastive sense. Chinese students might also use *on the other hand* to increase the word count of their assignments, since it is a longer chunk (North 2003; Leedham 2015). This might be another reason to employ it more frequently. It is noted that English students' texts tend to be longer than those of their Chinese counterparts in the Han CH-EN corpus (see Chapter 3).

Another difference in the use of *on the other hand* concerns words it co-occurs with. This seems not to have been investigated in previous studies. It was found that English students employed *on the other hand* with another contrastive marker, *but*. In the pattern *but on the other hand*, the item *on the other hand* might be used to emphasize *but* and the contrastive sense, with *but* being used to connect the two clauses (Quirk 1985: 935). This pattern was not used by the Chinese students, however.

The final distinctive feature of the item *on the other hand* identified in the study is the co-occurrence of "on the one hand...on the other hand". The form "on the one hand" was generally written as "on one hand" by both L1 groups. However, it should be noted that the form of "on one hand" is considered incorrect in English, according to the *Longman Dictionary of Contemporary English* (2014: 829). This authentic use of language does not accord with conventional grammar rules, but may indicate the beginning of an evolutionary change in the structure of this transition marker.

Contrastive *while* is also used statistically significantly more frequently by Chinese students than English students, although there does not seem to be much discussion of it in the previous literature. Biber (1999: 849) notes that the

item *while* occasionally marks a temporal relationship in academic prose, but primarily marks concession/contrast. This suggests that the concession and contrast relationships were not investigated separately in Biber's research, whereas in my research they fall into two different categorizes, signaling comparison and consequence relationship and are examined separately. Close examination of *while* in my study reveals some features of the use of this item in students' writing (see Section 5.3.2). For example, the misuse of *while* as *however* at the beginning position of a sentence, followed by a comma, was identified in Chinese freshmen writing (in the pattern of "While, "), indicating that novice Chinese students may not always have a full understanding of the difference between *while* and *however*. In addition, both L1 groups sometimes have problems with punctuation when employing contrastive markers. For example, Chinese students employed *while* to mark the contrast with what had been said in the previous sentence, although conventionally *while* is used at the beginning of the second clause in a sentence, to mark a contrast with the previous clause.

Another problem with for both groups of writers was the absence of a comma before *while* to separate the two clauses. This omission of the comma was more common in the English students' writing, occurring in around half of the uses of the item. This might suggest students are not fully aware of the correct punctuation to use with *while*.

The item *whereas* is equivalent to *while* when it expresses contrastive meaning (Huddleston and Geoffrey 2002: 737) and it has also seldom been discussed in detail in previous studies. The reason for this might be that *whereas* is not a high frequency word, and some studies, such as Biber (1999), only focus on the most common transitions, while others, such as Leedham (2015), only focus on the top keywords. The item is used significantly more by the Chinese students than the English students. Specifically, Chinese writers employed it twice as frequently as their English counterparts (see Section 5.3.3), which makes it worthy of note. *Whereas* is primarily used by the two groups of students

between two clauses within a sentence, and occasionally in sentence-initial position. Chinese students sometimes use it inappropriately, however, placing it in sentence-initial position with a comma (in the pattern of “Whereas,”). This is similar to the inappropriate use of *while* in the pattern “While,”. English students do not use this pattern, and it is arguable that Chinese students are more confused over the use of these contrastive items.

The significantly greater misuse of *whereas* and *while* followed by a comma may help to explain why there are fewer occurrences of the item *however* in the Chinese students’ texts, and why the English students used *however* significantly more than Chinese students. The contrastive marker *however* was investigated in the pilot study and was found to be the most frequent contrastive item, in line with the findings of Biber (2006), and in accordance with Leedham (2015) who found it had higher frequency in English students’ texts than in Chinese students’ texts. The previous research, however, has not examined in any detail the use of *however* across genres and disciplines, while it is discussed in the pilot study of my research. In addition, in my study, one inappropriate use with another contrastive item *by contrast* (i.e. “However, by contrast”) was identified in Chinese students’ writing but not in English students’ writing. The use of two contrasts together seems inappropriate or unnecessary as the combination does not occur in the BNC written books and periodicals. This might arguably be worthy of note.

*Whilst* is the other contrast marker used significantly more by English students than Chinese students, and it seems it has never been discussed in previous studies. One reason for this might be that researchers commonly consider it as archaic, so they tend to investigate it as one version of *while*. In fact, it seems that Chinese do not have understanding on this item since no Chinese students used it as a contrast.

Interestingly, when we investigate the distribution *whilst* in the Han CH-EN corpus (since the total number is not large), 79.0% of its occurrence are in the

non-science disciplines (Sociology, Business, HLTM and Linguistics), and 81.9% in the discursive genres (i.e. Essay and Critique). The finding is generally in line with the general investigation of *whilst* in the BAWE corpus. The disciplines which use *whilst* most frequently are non-sciences, and the discursive genres contain the most occurrences.

In addition to the contrastive items with statistically significant differences discussed above, items which do not differ significantly across groups in the Han CH-EN corpus have also been identified. These contrasts include *but*, *on the contrary*, *rather*, *meanwhile*, *at the same time*, *conversely*, *by contrast*, and *alternatively* (see Section 5.3), whose frequencies and features have been rarely examined in the previous literature, but are nevertheless worthy of note. For example, the item *by contrast* has a similar meaning and function to the item *in contrast*, but English and Chinese students used it rarely in their writing, and there is no statistically significant difference between the two L1 groups. Another example is the use of the item *on the contrary*. The common inappropriate use of *on the contrary* occurred in both L1 groups, and apparently students do not find it easy to master its relatively complicated meaning. Therefore, it is arguable that students should be recommended not to use this contrast marker before they are highly proficient writers. In short, many features of the use of contrasts which seems not to have been mentioned in previous studies were identified in this investigation.

Finally, the positions of the contrastive items in the sentence vary. Contrasts are mostly used correctly in the sentence-initial position and sentence-medial position (see examples in Section 5.3). Inappropriate use of contrasts in positions seems more striking in English students' writing than in their Chinese counterparts' texts. For example, the use of *however* in the sentence-medial position to connect two clauses within a sentence as if it were a conjunction is worthy of comment. This is a notable feature of English student writing, and it reflects a trend that has been widely observed by teachers of English, as these excerpts from a discussion group in 2013 suggest:

*Is 'however' a conjunction?*

*I'm not a hardline prescriptivist, but I do retain a few of the 'rules' that I continue to 'correct' when students flout them in their academic writing. I still tell them that 'however' is not a conjunction and that 'but' is often 'better'.....*

*Shall I just give up and start telling students that 'however' is indeed an alternative to 'but'?*

*[A]*

---

This message immediately provoked 15 responses, three of which are presented here:

*The fact that we can place 'however' in the positions permitted to conjunctive adverbs and that we can't do the same with 'but' suggests that we have to maintain the distinction with students of grammar even if the punctuation issue may be a lost cause. [B]*

*Students I've spoken to get told at school not to use 'but' so they substitute 'however' assuming they can use it in the same way to link sentences. I think you owe it to your students to alert them to the negative impact this makes on an audience. [C]*

*I suspect we are fighting a losing battle against a tide of linguistic evolution, but, until the tide is strong enough to remove the negative impression that [C] mentioned, I think anyone involved in raising students' awareness of language should keep up the fight. [D]*

The responses all seem to suggest that using *however* as a conjunction is not acceptable in academic writing, and that we owe it to our students to explain why. While many Chinese students who have learned English grammar systematically will readily grasp and accept that *however* is not a conjunction, the task of explaining this to English students may feel at times, as D says, 'like a losing battle'.

## 5.5 General findings for similarities

In addition to the contrast items investigated in this chapter, similarity items are also transition markers in the category of comparison. Four similarity items were found in the Han CH-EN corpus: *in the same way*, *similarly*, *likewise* and *correspondingly*, which are similar to the items identified in Hyland (2005). In

this section, I will firstly present the general findings about them and then investigate them individually.

It was found that these four items have the same function of marking arguments as similar (Hyland 2005: 50), but they have different frequencies. Figure 5.6 shows that these four similarity items did not occur frequently in the Han CH-EN corpus, and their frequency did not differ significantly in the Han CH and Han EN subcorpora ( $p > 0.05$ ). However, there are substantial differences between the four items, as shown in Figure 5.6.

Similarity	CH		EN		P-value
	AbsFreq	per 1000	AbsFreq	per 1000	
similarly	9	0.054	12	0.058	0.910
likewise	6	0.031	1	0.004	0.062
correspondingly	1	0.004	0	0.000	0.320
in the same way	0	0.000	1	0.002	0.320

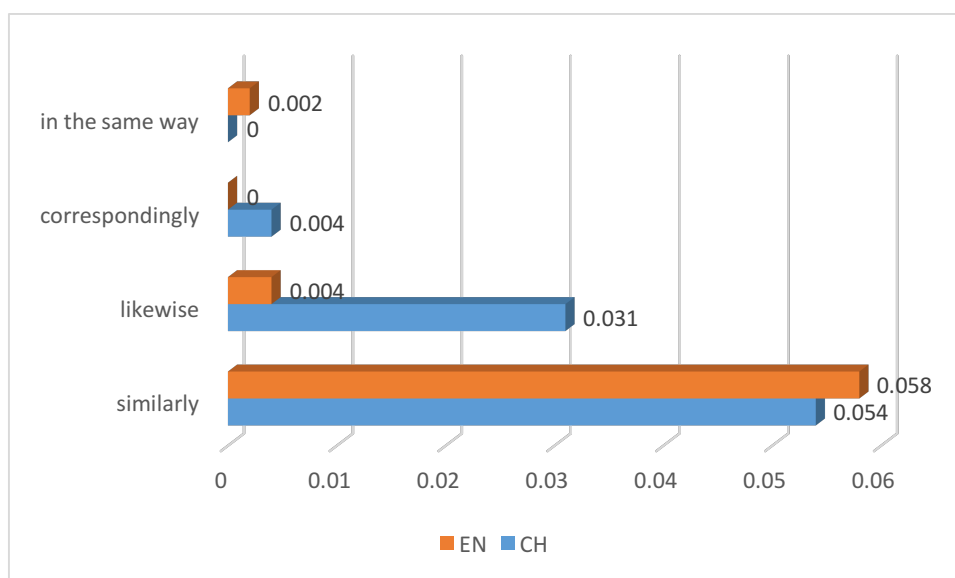


Figure 5.6: Similarity items in the Han CH-EN corpus

The item *similarly* accounts for the majority of markers in the similarity category, and the relative frequency in the two subcorpora is very close (0.058 vs. 0.054 per 1000 words). The next most frequent item is *likewise*, but this occurred much more in the Han CH subcorpus than in the Han EN subcorpus. The items *correspondingly* and *in the same way* rarely occurred in the two subcorpora. To conclude, both Chinese and English students tended to use the item *similarly* to mark arguments as similar in their academic writing, but were not likely to employ other items.

## **5.6 Findings for the use of specific similarity items**

In the previous section, similarity items were compared in terms of frequency. Although they all have a similar function as transition markers, students have different preferences for these items. In this section, these items are closely investigated, and then their use by both Chinese and English students is considered.

### **5.6.1 The use of *similarly***

As shown in the previous section, the item *similarly* accounts for the majority of the similarity markers in both the Han CH and the Han EN subcorpora, and the Chinese and English students used the item with almost the same frequency (0.058 vs. 0.054 per 1000 words). Their frequency is slightly higher than in the BAWE corpus as a whole (0.049 per 1000 words), but much higher than in the BNC corpus (0.019 per 1000 words). In other words, the Chinese and English students in the BAWE corpus used *similarly* slightly more, and much more than the expert BNC writers.

Another similar characteristic of the use of *similarly* in the Chinese and English students' writing is that they both used it in the sentence-initial position. For example,

*Similarly*, it is the reason why there is a fierce bidding competition among candidate cities for international events like Olympic Games or regional events such as European Capital of Culture. (CH3CSHMTM-3085d)

*Similarly*, paradigms and structures should be broken down and analyzed in greater depth in order for the student to be able to call on their declarative knowledge when asked to do exercises which ask them to recombine knowledge and form new sentences. (EN4CRLIN-6009a)

In the first example, the Chinese student used the item *similarly* in sentence-initial position to mark the argument as similar to the preceding one. The writer indicated that the international events discussed in the sentence following the item *similarly* had similar economic benefits and opportunities to the G8 Summit (mentioned in a previous sentence). Likewise, in the second example, the English writer used the item *similarly* in sentence-initial position to indicate that the argument is similar to a preceding one. The writer showed that in order to draw on students' declarative knowledge, something should be done to the paradigms and structures, a similar argument to one stated previously.

Most instances of *similarly* in the Han CH-EN were used in the same way, and both the Chinese and the English students employed the item correctly. However, there were a few inappropriate uses of the item in the Han EN subcorpus. For example,

For example the domain CH4 belongs to the heavy chain in the constant region, *similarly* the domain VL describes the domain of the variable region of the light chain. (EN4EXBIO-0043a)

In the example above, the English student used *similarly* to signal that the domain VL has a similar function to the domain CH4, but the item was used as a conjunction to connect the two clauses in the sentence, which seems inappropriate because *similarly* is an adverb. The inappropriate use of the item *similarly* only occurred in the Han EN subcorpus, perhaps because English students are not taught grammar to the same extent as Chinese students.

### 5.6.2 The use of *likewise*

The item *likewise* is the second most frequent item in the category of similarity markers. Although there is no significant difference in frequency between the Han CH and Han EN subcorpus, there is substantial difference. The relative frequency of *likewise* in the Han CH subcorpus is about eight times that in the Han EN subcorpus (0.031 vs. 0.004 per 1000 word). Its frequency in the entire BAWE corpus (0.014 per 1000 words) is between the Han CH and Han EN subcorpus, while its frequency in the BNC (0.004 per 1000 words) is the similar to the Han EN subcorpus. In other words, the Chinese students in the Han CH subcorpus used *likewise* more frequently than the English students in Han EN subcorpus and the contributors to the BAWE corpus generally, while the English students used *likewise* as frequently as the expert writers in the BNC.

However, there is similarity in the use of the item in the two subcorpora, in that both the Chinese and the English writers used the item *likewise* in sentence-initial position. For example,

Contributory negligence is an objective concept that depends on what the reasonable person would have done in the victim's position. *Likewise*, contributory fault should be an objective concept that turns on what the reasonable person would have done in the beneficiary's position. (CH3ESLAW-0410a)

Sugar is not essential for preventing spoilage in canned fruits, although it generally helps fruit keep its shape, color, and flavor... *Likewise*, salt has no effect on the natural color and texture of canned foods, and the main reason for using salt in canning is to enhance flavor. (EN1MRFS-6012f)

In the first example, the Chinese student used the item *likewise* in the sentence-initial position to signal that the argument about contributory fault is similar to the preceding argument about contributory negligence. Similarly, in the second example, the English writer employed the item *likewise* in sentence-initial position to indicate that the argument about the effect of salt on the canned foods is similar to the argument about the effect of sugar on canned fruits.

### 5.6.3 The use of *correspondingly*

Although the item *correspondingly* has a similar function to the items *similarly* and *likewise* to mark arguments as similar (Hyland 2005: 50), its frequency in the Han CH-EN corpus is lower. It occurs in the Han CH subcorpus only once, and it does not occur in the Han EN subcorpus at all. According to Sketch Engine, the relative frequency of *correspondingly* (1.68 per million) in the Han CH is close to that in BAWE corpus (1.44 per million), but higher than that in the BNC (0.44 per million). This means that the Chinese students used the item *corresponding* as frequently as the students in the BAWE corpus generally, but they used it more frequently than the expert writers in the BNC. In addition, the Chinese students used *correspondingly* in the sentence-initial position, like other similar items, i.e. *similarly* and *likewise*. For example,

Furthermore, many disparate fields are found relevant to the methods and theories of molecular phylogenetics, too. *Correspondingly*, some disparate sciences also greatly contribute to the development of phylogenetics, where

computer sciences and statistics are the best examples.  
(CH2CRBIO-0036b)

In the example above, the Chinese student used the item *correspondingly* in the sentence-initial position, with the item “also” in the medial position, to mark the argument as similar. The argument introduced by *correspondingly* is about the confirmation of the contribution of some disparate sciences to phylogenetics, which is similar to the preceding argument about the relationship between disparate fields and phylogenetics.

#### 5.6.4 The use of *in the same way*

Similar to the item *correspondingly* in the last section, the item *in the same way* has a low frequency in the Han CH-EN corpus. It occurs only once in the Han EN subcorpus, and does not occur in the Han CH subcorpus at all. It occurred with the contrast item *however*, and in the sentence-medial position. For example,

Certainly gender shapes the project of globalization from the developed to the developing world for the following reason; with more women working in the global economy, and ‘care deficit’ increasing, western women need to find some way of filling this gap and so are turning to their ‘sisters’ in the third world for support (Ehrenreich and Hochschild, 2002: 1-3). However *in the same way* it is important that we appreciate the gender ideologies which exist in the third world ‘push’ these migrant women closer to the ‘pull’ of the west ‘care deficit’ and so shape globalization in reverse. (EN4ESSOC-0422b)

In the example above, the English student employed the sentence-medial position *in the same way* to mark the argument as similar to the preceding one. Here the similarity was presented through showing the important common

effects of gender ideologies. In addition, the contrast item *however* was used with the similarity item *in the same way*, signalling contrast at another level. As shown in the two sentences, women in developed countries have relatively independent positions and need migrant women's work as they work in global economy, while women in developing countries do not have this position and to some extent are forced to work in developing countries, as indicated by the words "push" and "pull". Therefore, we note that the similarity item *in the same way* can be used with the contrast item *however* to express different dimensions of meaning, indicating the English students' subtle use of contrast and comparison.

## 5.7 Discussion of similarity

After showing the findings concerning the use of similarity markers, this section provides an explanation for the use of this category of transitions in the Han CH-EN corpus. Since the number of markers in this subcategory is not as big as the number of contrast markers, I do not investigate it from the perspective of discipline and genre family, but focus on the use of specific items (i.e. *similarly*, *likewise*, *in the same way*, and *correspondingly*). For the specific contrastive items, my research investigates one more similarity item (i.e. *correspondingly*) than Hyland (2005) includes in his list of transition markers. This might be a contribution to the field.

While little research has examined the specific similarity items, because of their relatively low frequencies, their features have been identified in my study. Firstly, frequencies of the similarity items vary considerably (see Figure 5.6). Both L1 Chinese and English groups of students used the item *similarly* substantially more frequently than the other similarity items. In contrast, they scarcely used the items *correspondingly* and *in the same way*. No English students used *correspondingly*, while no Chinese students used *in the same way*.

Secondly, while most of the similarity items were used correctly, inappropriate uses were identified in both L1 groups. For example, it was found that English students inappropriately used *similarly* as a conjunction to connect two clauses within the same sentence; Chinese students did not make this mistake.

The patterns of co-occurrence of similarity items, however, suggest that the English students' writing is more complex. For example, the item *in the same way* was found to have been used with the contrastive item *however*, i.e. "However, in the same way" in the English students' texts.

Finally, the majority of similarity items are used in the sentence-initial position, while some of them are used in the sentence-medial position.

In conclusion, this chapter has presented specific detail about the varied use of comparison transitions with examples which help to explain the statistics shown in Chapter 4. A number of themes are emerging, such as

- the role of transitions vs. visuals
- the role of contrasts in soft vs. hard disciplines
- the role of transitions in discursive vs. technical genre families
- the misuse of transitions as conjunctions
- the use of transitions following semi-colons.

The next chapters will consider the relevance of these themes to the other semantic categories of transitions, starting with consequence.

## **Chapter 6 The investigation of consequence**

### **6.1 Introduction**

Consequence is the second category of transition markers investigated in this study. According to Hyland (2005: 50), "consequence relations either tell readers that a conclusion is being drawn or justified or that an argument is being countered". The identification and analysis of consequence items are the same as the category of comparison investigated in the previous chapter. This chapter demonstrates the general findings of how Chinese and English student writers used consequence items in the Han CH-EN corpus, and then discusses the use of these items by the two groups of students.

### **6.2 General findings for consequences**

The use of consequence items in the writing of Chinese and English writers is compared across the corpus as whole, across disciplines and genre families. An examination of individual consequence transition markers where there are significant differences follows.

#### **6.2.1 Variation in the use of consequences across disciplines**

Before considering the variation of consequences across discipline, the overall frequency of consequences in the Han CH-EN corpus is presented.

Table 6.1: Consequences in the Han CH-EN corpus

	Chinese	English	P-value
<b>Total (n)</b>	867	1055	
per 1000 words	<b>5.401</b>	<b>5.202</b>	<b>p=0.700</b>

Table 6.1 shows the different frequencies of consequence items between the Chinese and English writers in English. The absolute frequency of consequence is considerably lower in the Han CH subcorpus than in the Han EN subcorpus (867 vs. 1055). However, the relative frequency of consequence is slightly higher in the Han CH subcorpus than in the Han EN subcorpus (5.40 vs. 5.20 per 1000 words). The variation of the difference between the absolute and relative frequencies is due to the Han CH subcorpus being smaller than the Han EN subcorpus. Although consequence markers have higher frequency in the Han CH than in the Han EN subcorpus, no significant difference occurs ( $p>0.05$ ). In other words, the Chinese writers do not use significantly more consequence items than their English counterparts.

Table 6.2: Consequences across disciplines

Discipline	CH	EN	P-value
	per 1000 words		
Law	6.594	5.649	0.629
Biology	5.218*	2.244	0.036
Engineering	4.749	5.743	0.448
Business	4.749	7.535	0.077
Food Science	4.670	4.549	0.888

\* indicates a significantly greater value ( $p<0.05$ ).

Table 6.2 shows the relative frequencies of consequences across five disciplines with more than five texts in each subcorpora. Three disciplines have higher relative frequencies of consequences in the Han CH subcorpus than in the Han EN subcorpus, i.e. Law, Biology, and Food Science, while two disciplines have lower relative frequencies of consequences in the Han CH subcorpus than in the Han EN subcorpus, i.e. Engineering and Business. No significant differences were found in the relative frequencies of consequences in four of the disciplines between the two subcorpora, i.e. Law, Engineering, Business, and Food Science ( $p>0.05$ ). However, significant difference occurred in Biology ( $p<0.05$ ). In other words, only in Biology do Chinese students use significantly more consequences than their English counterparts.

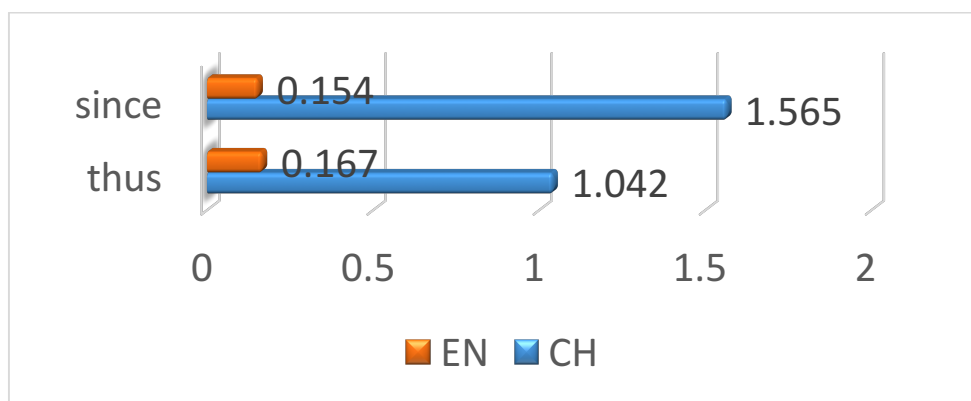


Figure 6.1: Consequences with significant difference in Biology

When I closely examined consequences in Biology, it was found that two consequence items occurred significantly more often in the Han CH subcorpus, i.e. *since* and *thus* (see Figure 6.1). In other words, the greater use of the two items in the Han CH subcorpus might have caused the statistically significant difference in the discipline of Biology between Chinese and English writers' texts. As the Figure shows, Chinese students used consequence *since* around ten times more often than English students (0.154 vs. 1.565 per 1000 words), and they used consequence *thus* about six times more often than their English counterparts.

### 6.2.2 Variation in the use of consequences across genre families

After providing the general findings of consequences across disciplines, I will show how consequences vary across genre families in this section.

Table 6.3: Consequences across genre families

Genre	CH	EN	P-value
	per 1000 words		
Essay	5.975	5.654	0.708
Critique	5.693	5.445	0.901
Methodology Recount	5.590	4.688	0.206
Explanation	4.598	4.087	0.857
Case Study	3.914	6.124	0.213

Table 6.3 shows the relative frequencies of consequences across the five genre families with more than five texts. Four genre families have higher relative frequencies of consequences in the Han CH subcorpus than in the Han EN subcorpus, i.e. Essay, Critique, Methodology Recount, and Explanation. Only one genre family has a lower relative frequency of consequences in the Han CH subcorpus than in the Han EN subcorpus, i.e. Case Study. There are differences for the relative frequencies of consequences between the two subcorpora, although there are no significant differences ( $p > 0.05$ ). In other words, the L1 Chinese writers did not use consequences significantly more often than their L1 English counterparts.

The relative ordering of the disciplines is the same for both groups of students, i.e. Essay > Critique > Methodology > Explanation. The exception is Case Study, occurring the least frequently in the Han CH subcorpus, and occurring the most frequently in the Han EN subcorpus (3.914 vs. 6.124). It was found that in Case Study some English students preferred to use consequence. For example, the text (ID: 0354b) contains consequence 3.071 per 1000 words and the text (ID:

0200e) contains consequence 2.853 per 1000 words. In contrast, some Chinese students' texts do not contain any consequence, such as texts of 0008a, 0291a, and 3085d.

### **6.2.3 The frequencies of individual consequences in the Han CH-EN corpus**

Specifically, 21 different consequence items were identified in the Han CH-EN corpus (see Figure 6.2), and their frequencies varied. As Figure 6.2 shows, the frequencies of six items are considerably higher than other items in the Han CH and Han EN subcorpora, i.e. *because*, *therefore*, *so*, *although*, *since*, and *thus*. Generally, their frequencies are twice as much as other consequence items. The rank of these items in the two subcorpora is also similar, but the most frequent item is different between them. *Because* is marginally the most frequent consequence in the Han CH subcorpus (0.844 per 1000 words), while *therefore* is notably the most frequent item in the Han EN subcorpus (1.049 per 1000 words).

Consequence	CH	EN	P-value
	per 1000 words		
because	0.844	0.888	0.813
therefore	0.842	1.049	0.318
so	0.789	0.740	0.783
although	0.636	0.613	0.871
since	0.628*	0.331	0.048
thus	0.601*	0.340	0.023
though	0.201	0.105	0.253
nevertheless	0.179*	0.045	0.007
hence	0.166	0.238	0.347
while	0.104	0.062	0.352
as a result	0.101	0.049	0.253
consequently	0.101	0.109	0.907
yet	0.077	0.160	0.115
even if	0.027	0.072	0.115
even though	0.025	0.064	0.111
nonetheless	0.025	0.005	0.144
as a consequence	0.018	0.003	0.286
thereby	0.015	0.003	0.347
accordingly	0.014	0.058	0.243
still	0.007	0.016	0.393
whilst	0.005	0.279*	0.000

\* indicates a significantly greater value ( $p < 0.05$ ).

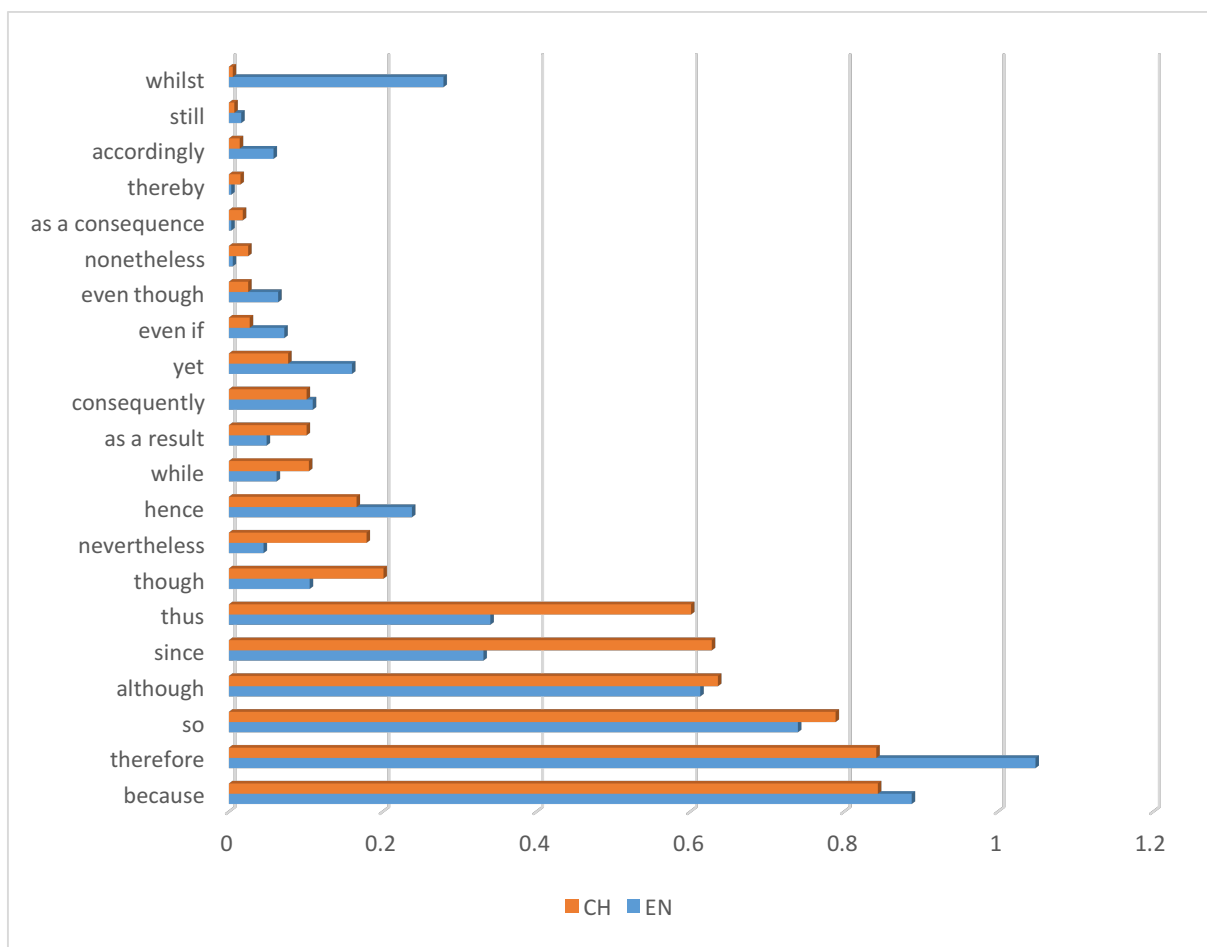


Figure 6.2: Consequences in the Han CH-EN corpus

It was found that 11 of the 21 items occurred more in the Han CH subcorpus than in the Han EN subcorpus, i.e. *so*, *although*, *since*, *thus*, *though*, *nevertheless*, *while*, *as a result*, *nonetheless*, *as a consequence* and *thereby* (see Figure 6.3). Chinese writers used three items (i.e. *since*, *thus* and *nevertheless*) significantly more than their English counterparts ( $p < 0.05$ ). On the other hand, 10 of the 21 items occurred more often in the Han EN subcorpus than in the Han CH subcorpus, i.e. *because*, *therefore*, *hence*, *consequently*, *yet*, *even if*, *even though*, *accordingly*, *still* and *whilst* (see Figure 6.4). The English writers only used the consequence *whilst* statistically significantly more than their Chinese counterparts.

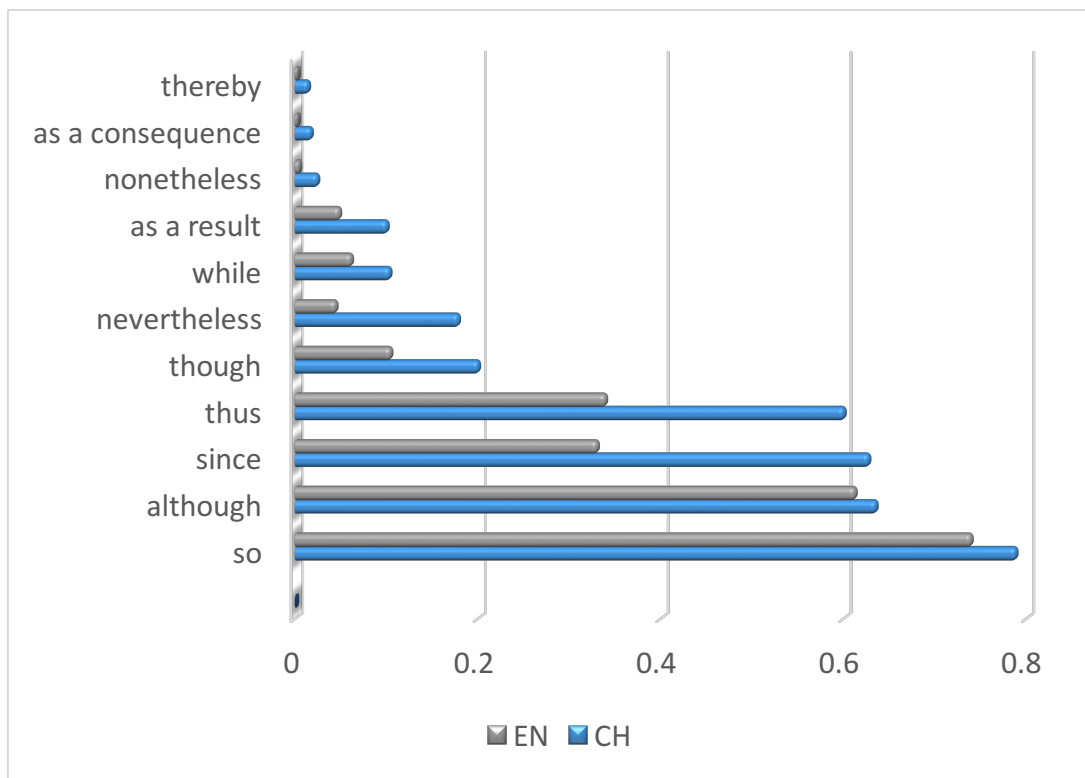


Figure 6.3: CH>EN in 11 of the 21 consequences

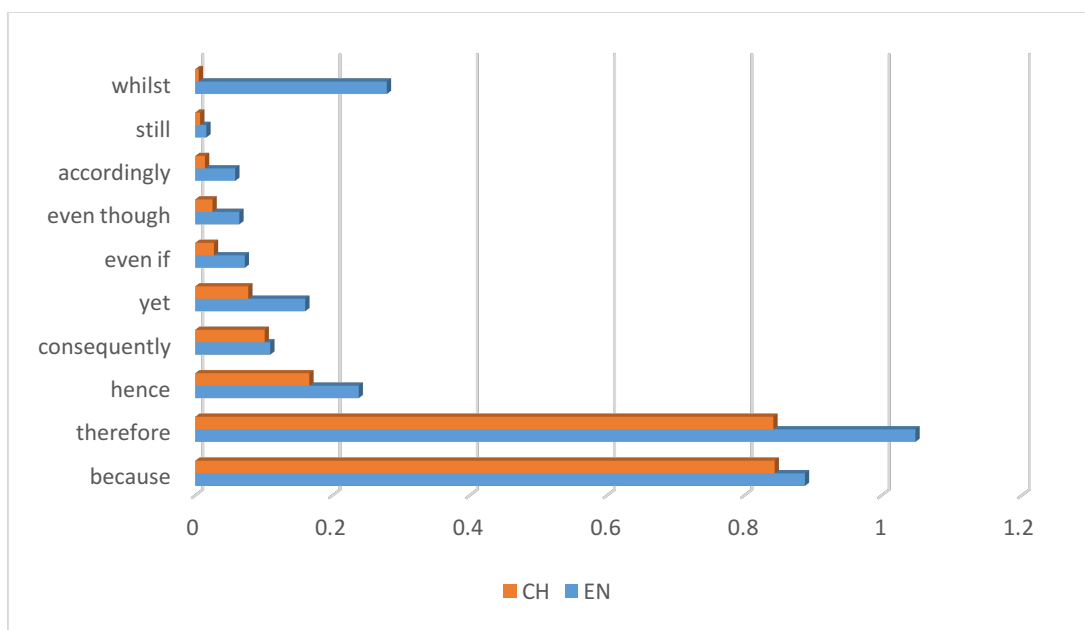


Figure 6.4: EN>CH in 10 of the 21 consequences

## 6.3 The findings of the use of specific consequence items

The previous section has shown the general findings of consequences in terms of discipline genre family, and the individual consequence in the Han CH-EN corpus. This section investigates the use of specific consequence items by the Chinese and English student writers. The items with significant differences between the two subcorpora are firstly presented, i.e. *thus*, *since*, *nevertheless*, and *whilst*. Then the rest of the items without significant differences are presented individually or by group.

### 6.3.1 The use of *thus*

As Section 6.2.3 shows, the consequence *thus* is one of the most common items in the Han CH-EN corpus; this is in line with the findings of Biber (1999: 887). The Chinese students used *thus* statistically significantly more than their English counterparts (0.601 vs. 0.340 per 1000 words). According to Lea et al. (2014: 835), *thus* can express two senses: 1) in this way; like this; 2) as a result of something just mentioned. However, only *thus* with the second sense was investigated in the current study, because I only focused on the consequence transition marker which "tell readers that a conclusion is being drawn or justified" (Hyland 2005: 50). For example,

*Thus*, we can see that these two countries have the autonomy from the business group or society and can effectively fight against rent-seeking activities and corruption. (CH4ESPOL-0257e)

*Thus*, the evidence presented above on the halt of non-union representative gains in elections shows us that trade unions have perhaps recognised their weaknesses and are realigning their focus to membership and increasing the legitimacy of trade unions in the workplace (Hege 2000). (EN4ESBUS-0073b)

The consequence *thus* in the above two examples are the typical use in the Han CH-EN corpus. The first example is from an L1 Chinese Master student in Politics, and belongs to the genre family of Essay. The consequence *thus* shows the relation between the following argument and the preceding one, indicating what two countries can do is the result or consequence of the preceding facts or events. The second example is from an L1 English Master student in Business, and belongs to the genre family of Essay. It is evident that the consequence *thus* expresses the result or consequence of the "evidence presented above".

It was found that *thus* might occur with the coordinator *and* in English writers' texts. This collocation *and thus*, was not found occur in Chinese writers' writing, however. For example,

In my opinion this seems to be an exorbitant erosion of one of the fundamental principles and protections of English law *and thus* this is my motivation for choosing it as the topic for my essay.  
(EN3ESLAW-0411c)

The item *thus* firstly expresses the consequence relation in the example, indicating the relation between the reason in the preceding clause and result of choosing the topic as his or her essay. Before the consequence *thus*, an *and* comes with it, and adds another relation in the same position of the clause.

In the category of consequence, two other consequence items, i.e. *therefore* and *hence*, seem to have very similar meaning to *thus*. As Biber et al. (1999: 889) claim "*Therefore, hence and thus* are in most cases interchangeable"; this might make students confused about their use. For example,

*Therefore*, basically, this report will firstly consider the destinations - Oxford and Bath in terms of the visitor's origins,

length of stay and how these meet the aims of the management plans employed. (CH1CSHLTM-3085a)

*Hence*, my aim here is to conclude which language learning theory (or theories) the Persian coursebook and tape is most closely focused on, the limitations and benefits of these theories and what would have enhanced my learning experience. (EN4CRLIN-6009a)

In the first example, the Chinese student used the consequence *therefore* to introduce what the author would like to deal with in his report, expressing the result or consequence based on preceding argument. Similarly, for the consequence *hence* in the second example, the English student used it to show the aim of the writing, indicating the result or consequence based on the preceding argument.

The findings in the current study might be able to offer a clearer picture for teachers and students about the differences of their frequencies in Chinese and English students' writing. As Figure 6.5 shows, in both corpora, the relative frequencies for the three items are: *therefore*>*thus*>*hence*. Since this section primarily focuses on the use of the item *thus*, the use of *therefore* and *hence* will be discussed later (see Section 6.3.6).

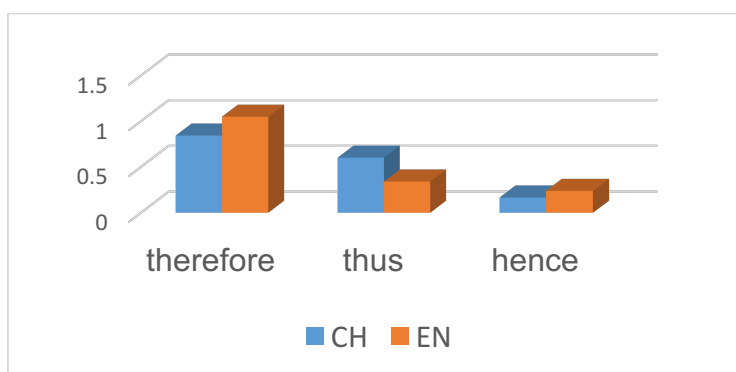


Figure 6.5: The comparison of *therefore*, *thus* and *hence*

In addition, the consequence *thus* was found to be used to link two clauses within a sentence in both the Han CH and the Han EN subcorpus. For example,

Workers are more likely to form their own groups, *thus* team work in companies has much broader influence than that implied by formal labour-management (Johnson 1949). (CH4ESBUS-0124a)

The strain varies inversely with the square of the thickness, *thus* we can say that this is the most influential parameter.  
(EN2MRENG-0243a)

The consequence *thus* in the above two examples expresses the result or consequence of the preceding clause, and was used to link two clauses within a sentence and with a comma before it. However, according to Lea et al. (2014: 835), when *thus* expresses "as a result of something just mentioned", it is an adverb, rather than a conjunction. Therefore, the consequence *thus* might not be used appropriately in these examples.

### 6.3.2 The use of *since*

In the category of consequence, *since* is commonly used in the Han CH-EN corpus, and the Chinese students used consequence *since* statistically significantly more often than their English counterparts (0.628 vs. 0.331 per 1000 words), as shown in Section 6.2.3. *Since* can express temporal sense and indicate consequence, according to Lea et al. (2014: 753). In the current study, I did not investigate *since* with the temporal sense, but only focused on *since* indicating consequence relation as "because". For example,

Many people always try to compare the successful stories in two of the East Asian States - Hong Kong and Singapore, *since* they are both small economies and have similar background. (CH4ESPOL-0257e)

From my analysis, I feel I can reasonably confidently conclude that the assessment DNA sequence was obtained from a T 4 -like bacteriophage such as S-PM 2, *since* it appears to contain many homologous genes to those found in T 4. (EN2MRBIO-0067a)

The two examples above show the typical use of consequence *since* in the Chinese and the English students' writing. In the first example, the consequence *since* was used to introduce a reason why people always try to compare Hong Kong and Singapore. In the second example, the consequence *since* was used to show the reason why the author can make the conclusion. It suggests that both instances of *since* express the meaning of "because".

The findings of the current study may show the tendency of how the Chinese and the English students used the consequences of *since* and *because*. As Figure 6.6 shows, both the Chinese and the L1 English students used consequence *because* more often than the consequence *since*. For English students, there was substantial difference in the use of the two items, with the use of *because* approximately three time more than the use of *since*. Compared with the English students, the Chinese students used consequence *since* significantly more often.

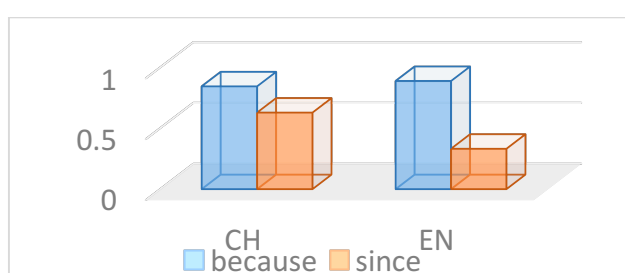


Figure 6.6: Consequence *because* and *since* in the Han CH-EN corpus

### 6.3.3 The use of *nevertheless*

Compared with the consequence items of *thus* and *since*, the consequence *nevertheless* was not used as commonly as them, and it was used statistically significantly more often by the Chinese students than their English counterparts (0.179 vs. 0.045 per 1000 words respectively), as shown in Section 6.2.3. For example,

The discussion here shows nearly all the organisations have an explicit desire to recruit committed people. *Nevertheless*, it also shows that there is a strong correlation between the size of firm and the level of sophisticated recruitment and selection approach (Price, 1994). (CH2ESHLTM-3018c)

Gough (1972) infers that Marx would analyse the latter range of workers as unproductive based on 'his analysis of the determination of needs under capitalism'. *Nevertheless*, Marx would consider the expansion in number of workers producing luxury, unnecessary goods as productive as they produce use-values. (EN4ESBUS-0073d)

The two examples above show the typical use of the consequence *nevertheless* to indicate consequence relation. In the first example, before the consequence *nevertheless*, the preceding sentence expresses the sense of "all the organization have desire to recruit". However, the fact shown in the second sentence indicates that the recruitment might be different, and it depends on some factors. In this case, according to Lea et al. (2014: 540), the item *nevertheless* expresses the meaning of "despite this fact". In the second example, the first sentence shows the Gough's opinion, while after *nevertheless*, it shows the different opinion of Marx, indicating the sense of "despite this fact".

It was found that *nevertheless* might come with the coordinator *but* in the English students' writing. This co-occurrence *but nevertheless*, did not occur in the Chinese students' texts, however. For example,

Motivation can help towards this *but nevertheless* the will of an individual is their own. (EN1ESBUS-0212c)

The consequence *nevertheless* indicates a consequence relation in the example, showing the concessive relation between the help of motivation and the will of an individual in the two clauses within the sentence. However, before *nevertheless*, the item *but* comes with it, and shows a contrastive relation in the same position.

In the category of consequence, *nevertheless* has very similar meaning with *nonetheless*. According to the Lea et al. (2014: 540, 543), the two consequence items in the dictionary have the exactly same explanation as "despite this fact", and have the exactly same example--"Further research is needed in these areas. Nevertheless/Nonetheless, some preliminary conclusion can be drawn". There seems no doubt that when students or even teachers and researchers look up these two items in the academic dictionary, no difference can be found out, which might make them confused. Here is another example of consequence *nonetheless* from the Han CH-EN corpus,

From the above backward trace, it may explain the reason why zanmen disappears in the southern Chinese; *nonetheless*, it is still not clear why there is no corresponding word having the similar function as zanmen does. (CH4ESLIN-6058d)

The *nonetheless* in the above example expresses the consequence relation between two clauses in a sentence, indicating the concessive sense between the "explain the reason why" in the preceding clause and "it is still not clear why" following the consequence *nonetheless*. It seems that in this case

*nonetheless* can be interchangeable with *nevertheless*. Nevertheless, the findings in the current study might be able to offer a clearer picture for teachers and students on the differences of their frequencies in Chinese and English writers. As Figure 6.7 shows, in both corpora, writers used consequence *nonetheless* at a very low frequency, but they used considerably more consequence *nevertheless* than *nonetheless*. This bar chart shows the likeliness of the items with very similar meaning used by successful L1 Chinese writers and L1 English writers, which might be helpful for students when they are not sure which item should be more commonly used in their writing.

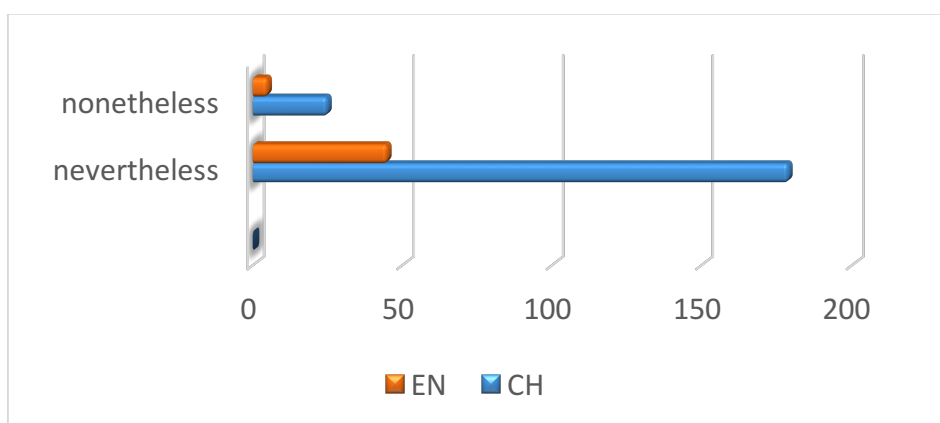


Figure 6.7: Nevertheless and nonetheless in the Han CH-EN corpus

#### 6.3.4 The use of consequence *whilst* and *while*

The consequence *whilst* is usually under the item of *while* in a dictionary, and may be explained as "also whilst" e.g. Lea et al. (2014: 900). As described in section 5.4.2, *while* can be used to express the temporal, contrast and concession senses, according to the *Oxford Learner's Dictionary of Academic English* (Lea et al. 2014: 900). In other words, *whilst* can be used to express the temporal, contrast and concession senses. In this chapter, I examined the consequence *whilst* with concession sense, and exclude the temporal and contrast sense, so consequence *whilst* can be explained as "although; despite the fact that..." (Lea et al. 2014: 900). Here are examples of consequence *whilst* and *while* from the Han CH-EN corpus,

*While* this assumption is perfectly reasonable, it does introduce a certain amount of error to the final result. (CH1MRENG-0008b)

This essay shall however argue that *whilst* important technological change did occur, the fact that the full potential impact had yet to occur showed that this period constituted an important prerequisite for what was to follow rather than constituting the revolution in itself. (EN1ESECO-0117a)

The items *while* and *whilst* in the examples above express relations of consequence, indicating concessive sense. In the first example, consequence *while* was used at the initial-position of a sentence with the sense of "although", and the concessive relation was indicated by "this assumption is perfectly reasonable" and "introduce a certain amount of error". In the second example, the consequence *whilst* occurs at the initial-position of a clause, and it also has the sense of "although". The concessive relation was expressed by "important technological change did occur" and "impact had yet to occur".

#### **6.3.5 The use of *although* group**

According to Lea et al. (2014), the items of *although*, *though*, *even though* and *even if* can express concessive sense and may have the closest meaning in the category of consequence transition markers. For example, the items *though* and *even though* are explained in the same way as "despite the fact that" (Lea et al. 2014: 832; 289). Therefore, the investigation of the four items in the Han CH-EN corpus are presented together in this section.

Items	CH	EN	p-value
	per 1000 words		
although	0.636	0.613	0.871
though	0.198	0.075	0.136
even if	0.027	0.072	0.115
even though	0.025	0.064	0.111

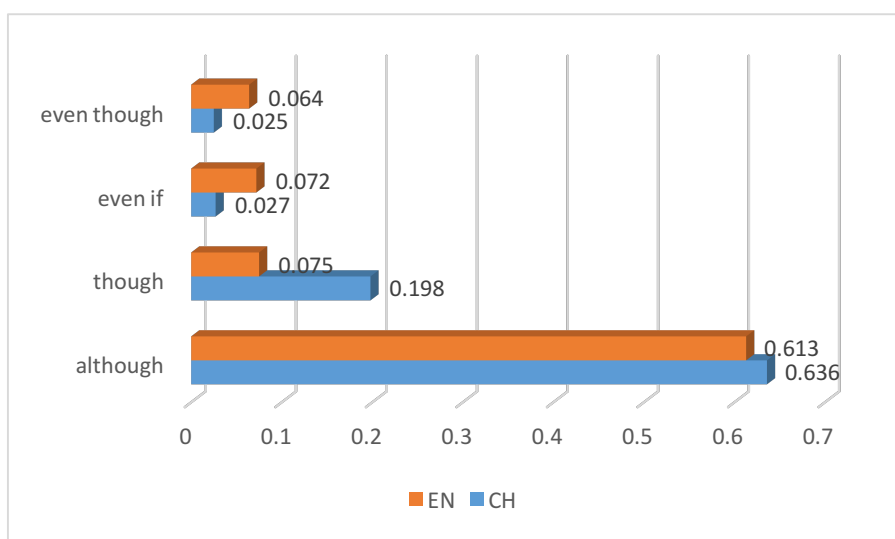


Figure 6.8: The frequencies of the *although* group in the Han CH-EN

Generally, although the four items are very close in meaning, it can be noted that their frequencies in the Han CH-EN corpus vary (see Figure 6.8). The general tendency of the four items in the Han CH-EN is *although* > *though* > *even if* > *even though*, in which the item *although* accounts for most of the items in this group in the Han CH-EN corpus, while the items *even if* and *even though* have low frequencies. In addition, it was found that the Chinese students used the items *although* and *though* more frequently than the English students, while the English students used the items *even though* and *even if* more frequently than their Chinese counterparts.

#### 6.3.5.1 The use of *although*

According to Figure 6.8, we notice that in the Han CH-EN corpus, students mainly use *although* to express concessive sense, compared with the other three items. Furthermore, the relative frequency of the item *although* in the two subcorpora are very close (0.613 vs. 0.636 per 1000 words), so there is no significant difference for the frequency. In the two subcorpora, the item *although* was used to indicate the concessive sense. As explained in Lea et al. (2014: 29), it is “used for introducing a statement that makes the main statement in a sentence seem surprising”. For example,

*Although* tourism brings a considerable benefit to the local economy, it should be remembered that the city exists primarily to meet the needs of those who live and work in, and all the local decision-making should reflect this by putting the needs of local people first. (CH1CSHLTM-3085a)

This suggests that by being empowered, employees will have authority *although* in reality it is felt that empowerment results in employees 'having to do more for less' (Caulkin, 1996 p8) cited in (Lashley 2001 p 270) and is merely a system 'designed by management and intended to generate commitment and enhance employee contributions to the organization' (Wilkinson 1997). (EN2ESHLTM-3040d)

In the first example, the item *although* was used by the Chinese student to introduce a statement on the benefits of the tourism to the local economy, which indicates concessive sense because the main clause shows the local decision-making should put the needs of local people first, instead of tourism. Similarly, in the second example, the *although* was used by the English writer to introduce the argument that the employees do not really benefit from the empowerment,

which create the concessive sense shown in the main clause that employees will be empowered.

For the two examples above, we notice that the subordinate clause introduced by the item *although* can precede the main clause (see the first example) and it can follow the main clause (see the second example). One characteristic for the position is that the subordinate clause introduced by the item *although* tend to precede the main clause in both the Han CH and Han EN subcorpora. The Chinese students placed 71.7% (76 of 106) of the subordinate clauses introduced by *although* before the main clause, and the English students did 61.8% (81 of 129) in the same way.

There is, however, a difference for the use of the item *although* between the Han CH and Han EN subcorpus. The Chinese students used “but” with the item *although*, while the English students did not use it in the same way. For example,

*Although* there was slightly increase in dividends, but most of them were still in proposed progress. (CH4CRENG-0223d)

In this example, the item *although* was used by the Chinese student to introduce an argument on the increase in dividends, which indicates concessive sense because the main clause shows most of them had not done likely. The main clause, however, was introduced by the item “but”, which was not necessary and inappropriate.

#### 6.3.5.2 The use of *though*

According to Table 6.3.5, the Chinese students used the item *though* more frequently than their English counterparts (0.198 vs. 0.075 per 1000 words), but there is no significant difference ( $p > 0.05$ ). There are a few meanings and functions for the item *though*. For example, it can be a conjunction and adverb

with different meaning (see Lea et al. 2014: 832). However, this research only focuses on transition markers, so I only investigate the item *though* as a conjunction with the meaning “despite the fact that” (Lea et al. 2014: 832). For example,

*Though* quality service in the hospitality industry is difficult to measure, it could be argued that the behavior of employees considerably influence their ability to give high quality service.  
(CH1ESHLTM-3018d)

The main trade union confederations in France are the CGT, the CFDT, the FO, the CFTC, the CFE-CGC and UNSA, *though* it is acknowledged that the FEN and the US-GdD are influential trade unions, primarily in the public sector.  
(EN4ESBUS-0073c)

In the first example, the Chinese student used the item *though* to introduce the argument on the difficulty of the measurement of the hospitality industry, which shows the concessive sense with the argument in the main clause that high quality service is considerably influenced by the factor of employee’s behaviour. Similarly, in the second example, the English writer employed the item *though* to introduce an argument that the FEN and the US-GdD are two well-known trade unions in the public sector, which shows the concessive relationship with the argument in the main clause that the main trade union confederations are the CGT, the CFDT and so on.

For the two examples above, we notice that the subordinate clause introduced by the item *though* can precede the main clause (see the first example) and it can follow the main clause (see the second example). That is to say, there are two positions of the item *though* in a sentence, which is similar to the item *although*. However, the Chinese and English students have different preferences. The Chinese students placed 62.2% (23 of 37) of subordinate

clauses introduced by *though* before the main clauses, while the English students only placed 13.3% (2 of 13) in the same way. It suggests that the position of the item *though* is similar to the position of *although* in the Chinese students' texts, while the position of the item *though* is different from the position of *although* in the English students' writing. The English students tended to place the subordinate clause introduced by the item *though* after the main clause, while they tended to place the subordinate clause introduced by the item *although* before the main clause.

#### 6.3.5.3 The use of *even though* and *even if*

The item *even though* is a synonym of *although* and *though*, and its explanation— “despite the fact that” is even the same as the item *though* (see Lea et al. 2014: 289). Similarly, the item *even if* is explained as “despite the possibility, fact or belief” (Lea et al. 2014: 289). As a transition marker, it was found that the items *even though* and *even if* were used similarly as the items *although* and *though* in the Han CH-EN corpus. For example,

A suggestion is to take more observations over each sample,  
*even though* it is very expensive to repeat the experiment  
many times. (CH4MRBIO-0162e)

*Even if* all businesses were to follow all of the laws and  
regulations set by the Government, there is still a chance that  
the consumer can create a situation that can cause the food to  
become unsafe. (EN1ESFS-6004c)

In the first example, the Chinese student used the item *even though* to introduce an argument on the high cost to repeat the experiment, which indicate the concessive sense with the main clause that the experiment is suggested to be conducted. Similarly, in the second example, the English writer used the item *even if* to introduce an argument on the businesses' following the laws and

regulations, which shows the concessive sense with the main clause that the food may become unsafe because of the behaviour of the consumers.

The use of the items in the two examples above show the similarity between the items of *even though/if* and the items of *although* and *though*, but there is difference in terms of the occurrences in the Han CH and Han EN subcorpora. It was found that the Chinese students used the items *although* and *though* more frequently than their English students, but they used the items of *even though* and *even if* less frequently than their English counterparts. It suggests that the Chinese students seems to be more familiar with the items *although* and *though* than the items *even though* and *even if* in their academic writing.

#### **6.3.6 The use of *therefore* group**

According to Lea et al. (2104), the nine items of *therefore*, *so*, *thus*, *as a result*, *hence*, *consequently*, *as a consequence*, *accordingly* and *thereby* have similar meanings and show the relationship of cause and effect. For example, the item *consequently* is explained as “as a result”, and is a synonym of *therefore* (Lea et al. 2014: 160). It is argued that these items are commonly difficult to be distinguished when students are choosing to use them in their academic writing. Therefore, the investigation of the nine items in the Han CH-EN corpus are presented together in this session, which may clearly show the characteristics of items in Chinese and English students writing.

Consequence	CH	EN	P-value
	per 1000 words		
therefore	0.842	1.049	0.318
so	0.789	0.740	0.783
thus	0.601*	0.340	0.023
hence	0.166	0.238	0.347
as a result	0.101	0.049	0.253
consequently	0.101	0.109	0.907
as a consequence	0.018	0.003	0.286
thereby	0.015	0.003	0.347
accordingly	0.014	0.058	0.243

\* indicates a significantly greater value ( $p < 0.05$ ).

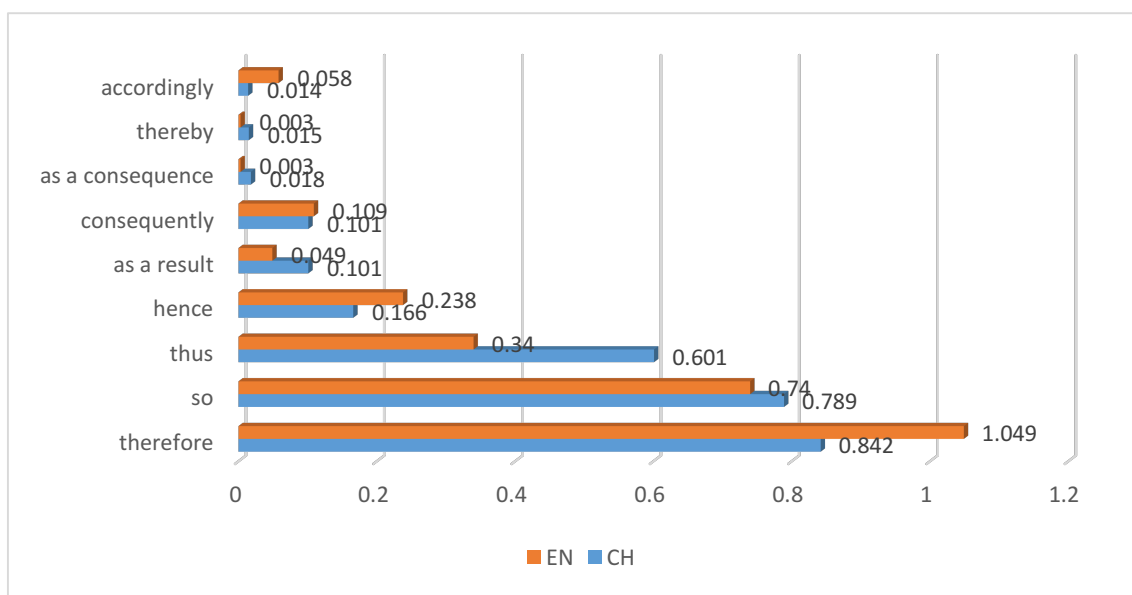


Figure 6.9: The frequencies in the *therefore* group

As shown in Figure 6.9, the frequencies of the eight items in *therefore* group vary in the Han CH-EN corpus, and there is no statistically significant difference for each item in the Han CH and Han EN subcorpora, excepted for *thus* which

was examined earlier. The items *therefore*, *so*, and *thus* have notably higher frequencies in this group which show the cause and effect relationship in the Han CH-EN corpus. The remaining six items occur with relatively lower frequency (i.e. *hence*, *as a result*, *consequently*, *as a consequence*, *thereby* and *accordingly*). In other words, the Chinese and English students tended to use the items *therefore*, *so* and *thus* to express a cause and effect relationship in their academic writing, but did not use the other items to show the relationship frequently. It is noted that the item *thus* has been investigated in section 6.3.1, here it will not be primarily examined again.

#### 6.3.6.1 The use of *therefore*

According to Figure 6.9, we notice that compared with other seven items, the item *therefore* is the marked preference for both Chinese and English students, and there is no statistically significant difference ( $p>0.05$ ). Furthermore, English students used it more frequently than their Chinese counterparts (1.049 vs. 0.842 per 1000 words). In the Han CH-EN corpus, the item *therefore* is used to express the cause and effect relationship, and is specifically “used to introduce the logical result of something that has just been mentioned” (Lea et al. 2014: 829). For example,

One important result of the model is the factor-price equalization theorem, which will be explained in the essay. However, this theorem makes no assumption about demand conditions. *Therefore*, this essay will continue to look at different demand conditions in countries and see whether the factor-price equalization theorem holds. (CH3CRECO-0076a)

Comparisons with other gearboxes suggest the design is comparable with other gearboxes used in similar applications. *Therefore* it is believed that the gearbox is a cost-effective

design which makes economic use of available space.  
(EN3DSENG-0023e)

In the first example from the Chinese student, the item *therefore* was used to introduce what the result that the essay will do based on the reason provided previously. In the second example, the English writer used the item *therefore* to introduce the claim on the cost-effective design of the gearbox.

It can be noted that in the two examples above, the item *therefore* occurs at the sentence-initial position. This sentence-initial *therefore* accounts for the vast majority of the occurrences (82.5%) in the Han CH subcorpus, while it does not account for half of the occurrences (43.6%) in the Han EN subcorpus. It means that Chinese students tend to use the item *therefore* in the sentence-initial position, while English writers do not have the preference. In addition, it can be noticed that in the two examples above, the first *therefore* is not followed by a comma, but the second one is followed by one. It is identified that 81.7% of sentence-initial *therefore* is followed by a comma in the Han CH subcorpus, while 40.2% of sentence-initial *therefore* is not followed by a comma in the Han EN subcorpus. In other words, Chinese writers tend to use commas after a sentence-initial *therefore*, while English writers do not use commas after a sentence-initial *therefore* commonly.

For the item non sentence-initial position *therefore*, there are four ways occurring in the Han CH-EN corpus. The first two ways are that the item *therefore* occurs in the middle of a clause in a sentence and occurs after a semicolon between two clauses in a sentence. For example,

It was *therefore* suggested that such policies could be utilized to shift the Phillips curve back to its original position and hence reduce both inflation and unemployment synonymously.  
(EN2ESECO-0399b)

However, a large number of people learn their second language in a L1 speaking environment and may encounter more difficulty from L1; *therefore*, internal drive and some individual factors might play a more important factor comparing to immigrants. (CH4ESLIN-6058a)

In the first example, the English students used the item *therefore* in the middle of a clause to introduce the logical result of the suggestion on policies. In the second example, the Chinese student used the item *therefore* after a semicolon between two clauses in a sentence to introduce the logical result on internal drive and individual factors. The first way of using *therefore* in the middle of a clause accounts for the vast majority of the Non-sentence initial position *therefore* in the Han CH-EN corpus, while there are only a few *therefore* after semicolon between two clauses in a sentence in the corpus.

The third way of using the item *therefore* is “and therefore...”, in which *therefore* follows the conjunction *and* in a sentence. For example,

Instead of using the entire bundles of HR practices, he argues that the management of human resources is influenced by the nature of service delivered by the operations *and therefore* the practice should be 'best fit', which means the approach should be fully integrated with the specific organizational and environmental context. (CH2ESHLTM-3018c)

So whilst the course book does show elements of Spolsky's six necessary conditions, it does not meet them fully *and therefore* there were limitations in the success of the instruction received. (EN4CRLIN-6009a)

In the first example, the Chinese student used *and therefore* to introduce the logical result on the practice in a sentence, and in the second example, the

English student used *and therefore* to introduce the logical result on the limitations. Although the way of using *and therefore* is not common in the Han CH-EN corpus, it occurs a few times in different students' texts in each subcorpus.

The fourth way of using the item *therefore* is that *therefore* is used as a conjunction to connect two clauses in a sentence, which might be an inappropriate use of the item. For example,

Clearly, with the concern of financial reimbursement, the guest use money as a way for mutual obligation, instead of being a provider in return, and for the host, they may have ulterior motives when serving, *therefore*, Telfer (2000) suggests "This kind of hospitality is not very hospitable." (CH1ESHLTM-3018d)

Japan for example, does not recognize 'brain death' as biological death nor the death of the person, *therefore* organs cannot be taken from patients in this condition, as is permitted in other countries (Lock, 2002). (EN4ESSOC-0405b)

In the first example, the Chinese student used *therefore* to introduce the logical result on hospitality. It can be noticed that the item *therefore* between two commas is between two clauses in a sentence, which means it is used as a conjunction to introduce the second clause. In the second example, the English writer used *therefore* to introduce the logical result on the taking of organs. Similarly, we notice that the item *therefore* which is after a comma is used as a conjunction to introduce the second clause of the sentence. There are 7.7% (6/78) texts of the Han CH subcorpus contain the inappropriate use of the item *therefore* as a conjunction, while double the number of texts (15.4%) in the Han EN subcorpus contain it. 15.4% (6/32) of Chinese students used it in this way, and 20% (10/50) of English students used in the same way. In short, the

inappropriate use of *therefore* as a conjunction seems to occur regularly for both Chinese and English students.

#### 6.3.6.2 The use of *so*

The item *so* is the second most frequent one in the *therefore* group of consequence (see Figure 6.9), and there is no statistically significant difference ( $p > 0.05$ ) as Table 6.3.6 shows. Chinese students used the item *so* slightly more than their English counterparts in the Han CH-EN corpus (0.789 vs. 0.740 per 1000 words). As a consequence marker, the item *so* was “used to introduce the result of something that has just been mentioned” (Lea et al. 2014: 759). For example,

We don't know whether we can do t test for this microarray, since the requirement for a t test is equal variance and normally distributed. To test equal variance, F test can be applied. However, still because there are too few observations, this test cannot tell too much. So, we assume all data is sampled on a random basis and normally distributed, with equal variance for each sample. (CH4MRBIO-0162e)

In relationship terms there is relatively close proximity as they are friends, hearing of their accident caused her to suffer nervous shock so it can be assumed that the relationship was indeed very close. (EN3PQENG-0146e)

In the first example, the Chinese writer used the item *so* to introduce the result on an assumption about the data sampled, and the reason can be noticed in preceding sentences. In the second example, similarly, the English student used the item *so* to introduce the result on an assumption about the relationship. We noticed that the item *so* in the first example is used in the sentence-initial position, while the *so* in the second example is used in the

medial position to introduce the second clause in the sentence. The result of the investigation for the position is that 45.5% (40 of 88) of the item *so* occur in the sentence-initial position in the Han CH subcorpus, while only 20.8% (27 of 130) of the item *so* occur in the sentence-initial position in the Han EN subcorpus. It means that Chinese students are twice as likely to place *so* in the initial position of a sentence to introduce the result of something that has just been mentioned in the academic writing.

For the sentence-initial *so* in the above example, it is noted that it is followed by a comma when it is used to introduce the result, whereas it might be not followed by a comma to function as a consequence marker in a sentence. For example,

So my recommendation is that the shareholder should have bought some more shares. (EN4CSENG-0146d)

In the example above, the English student used the item *so* to introduce the result on his or her recommendation about shareholder, in which the item *so* is not followed by a comma to play the role of a consequence marker. It was found that the majority of the sentence-initial *so* is not followed by a comma, accounting for 80% and 92.6% respectively in the Han CH and Han EN subcorpora. It suggests that Chinese and English students are both likely to use the consequence marker *so* to introduce a result without a comma after it.

The last way of using the item *so* is “and so...”, in which *so* is followed the conjunction *and* in a sentence. For example,

The dietary intakes of these nutrients are expressed as percentage of daily total energy intake *and so* it is hard to judge whether students' daily intakes are optimum.  
(CH2MRFS-6008f)

All acids being using during this experiments are irritants and may cause corrosion to skin and clothes *and so* lab coats, glassware and gloves should be worn at all stages of this experiment. (EN2MRFS-6084e)

In the first example, the Chinese writer used the item *so* after the conjunction *and* to introduce the result on the difficult of the judgement. In the second example, similarly, the English student used the item *so* after the conjunction *and* to introduce the result on the corrosion of the experiment facilities. It was found that only one student used the item *so* in this way in the Han CH subcorpus. However, in the Han EN subcorpus, 23 times of *and so* occur in the 28% of total students and 19.2% of total texts. It means that Chinese students use the item *so* with the conjunction *and* rarely, while English students use it quite frequently.

#### 6.3.6.3 The use of *hence*

Apart from *therefore* and *so*, the item *hence* is used to indicate the consequence relationship, and there is no statistically significant difference ( $p > 0.05$ ) for the relative frequency between the Han CH and Han EN subcorpora. English students used the item slightly more than their Chinese counterparts (0.238 vs. 0.166 per 1000 words). *Hence* was to express “for this reason”, as Lea et al. (2014: 384) shows. For example,

*Hence*, it can be concluded that the Dutch Republic was not the first modern economy as de Vries and van der Woude said, but rather "the last stage of merchant capitalism". (CH1ESECO-0071a)

*Hence*, it is fair, reasonable and just to impose a duty of care on David that he should have taken more care to avoid injuring pedestrians in the taxi rank. (EN3PQENG-0146e)

In the first example above, the Chinese student used the item *hence* to introduce the conclusion on the economy of the Dutch Republic. In the second example, similarly, the English writer used the item *hence* to introduce his attitude on the imposing the duty of care on David. We notice that in both examples above, the item *hence* is used in a sentence-initial position. It was identified that 87.5% (28 of 32) of *hence* in the Han CH subcorpus occurs in the sentence-initial position, while 60.5% (26 of 43) of *hence* in the Han EN subcorpus occurs in the sentence-initial position. It means that both Chinese and English students tend to place the item *hence* in the initial position of a sentence, but Chinese students are more likely to use it in this way.

For the item *hence* in the medial position of a sentence, it was found that the item *hence* may follow a semicolon between two clauses. For example,

But many elements of vehicle's form cannot be anticipated on computer; *hence*, wind tunnel is used to assess the advanced aerodynamic performance of a vehicle, such as wind noise.  
(CH2EXENG-0254f)

This would be too high for a single stage reduction; *hence* the suggestion of a double reduction should be carried out.  
(EN3DSENG-0023e)

In the first example above, the Chinese writer used the item *hence* after the semicolon and between two clauses in a sentence to introduce the result of using wind tunnel. In the second example, the English student used the item *hence* in the same way to introduce the result on the suggestion of carrying out a double reduction. It was, however, found that the use of the item *hence* in this way occurs once in each of the Han CH and Han EN subcorpus. Therefore, although both Chinese and English students use *hence* following a semicolon and between two clauses in a sentence, it is not common in their writing.

Another sentence-medial position *hence* is that it may collocate with the conjunction *and* in a sentence to introduce a clause as a result. For example,

Once the higher price levels have been set, workers respond by requesting higher wages to maintain their living standards *and hence* the process is repeated in what Phillips referred to as a 'wage-Price' spiral. (EN2ESECO-0399b)

In the example above, the English student used the item *hence* with the conjunction *and* to introduce the result on the repeat of the process. The use of *hence* in this way, however, does not occur in the Han CH subcorpus, but only occurs in the Han EN subcorpus. It was found that 10% (5 of 50) of students used it nine times in their writing, accounting for 52.9% of the sentence-medial position *hence*. In short, Chinese students do not use the item *hence* collocated with *and*, but English students used in this way, especially in the medial position of a sentence.

As a special sentence-medial type, the clause-medial *hence* was also identified in the Han CH-EN corpus. For example,

As shown in the figure above, with the help of the newly implemented system, the employees could easily view all the details of the customers residing in the first floor of the hotel. The newly introduced system, *hence*, makes it easier for the staff members and other employees to gain any form of information with ease and without much changes to the system. (CH4DSENG-0353d)

There are additional shear stresses, FORMULA, inherent in the flow which slow the fluid down and increase pressure gradient, as reviewed in "Wall Shear stress". These additional

stresses *hence* increase the Cf value when using equation (12). (EN2MRENG-0023d)

In the first example above, the Chinese student used the clause-medial *hence* to introduce the result on the newly introduced system. In the second example, similarly, the English writer used the clause-medial *hence* to introduce the result on the increase of the additional stresses. The use of the item *hence* in the medial position of clause was identified in both Han CH and Han EN subcorpus, but the occurrence is rare. It might be argued that the use of the item in the medial position of a clause is inappropriate as such use of the item has not been found in the Lea et al. (2014) and in BNC (text type: written books and periodicals).

The last characteristic of using the item *hence* is that both Chinese and English students may use it inappropriately as a conjunction. For example,

Surface 9.03 and surface 11.1 have got shorter payback time than the others, and the payback time is nearly identical, but their values of oil saved are different, *hence*, the return over its lifetime is different. (CH3PQENG-0254h)

The implicit implication of this is that a country exports the services of its abundant factor and imports the services of its scarce factor, *hence* trade in commodities also exchanges surplus factor services between countries. (EN3CRECO-0111a)

In the first example above, the Chinese students used the item *hence* to introduce the result on the difference of the return. In the second example, the English writer used the item *hence* to introduce the result on the exchange of the surplus factor services. In both examples, the item *hence* after a comma is used to introduce the second clause of a sentence. In fact, the part of speech of

*hence* is adverb (Lea et al. 2014: 384), which means that it might be inappropriate to use it as a conjunction to introduce a clause in a sentence. It was found that only one Chinese student used it twice in this way in the Han CH subcorpus, while four students (8% of the total) used it six times in five texts in the Han EN subcorpus. It suggests that Chinese students rarely use *hence* inappropriately as a conjunction, but English writers are more likely to use it in this way.

#### 6.3.6.4 The use of *as a result*

The item *as a result* is one of transition marker in the *therefore* group, which has similar meaning with *therefore* and indicates the consequence relationship. According to Table 6.3.6, although there is no statistically significant difference ( $p>0.05$ ) for the relative frequency between the Han CH and Han EN subcorpora, Chinese students used the item *as a result* twice more than their English counterparts (0.101 vs. 0.049 per 1000 words). The item *as a result* can be used in the sentence-initial position in the Han CH-EN corpus. For example,

Now no manufacturer publishes the bit-stream format for programming FPGAs (the one exception, the Xilinx XC6200, now seems to have been dropped). *As a result*, the only design software available for these devices has been commercial software, and it has not been possible to create free software to make up for some of the deficiencies in these tools. (CH3ESCYB-6107c)

Though the range of soil types is largely influenced by the subsoil types, it is Man's activities that have driven the changes. *As a result*, alongside man-made cultivated land, new 'natural' habitats have arisen supporting various communities, including moorlands, heathlands and grasslands. (EN4EXBIO-6007c)

In the first example above, the Chinese writer used the item *as a result* in the sentence-initial position to introduce the result on the only design software available. Similarly, in the second example, the English student used the item *as a result* in the sentence-initial position to introduce the result on the new 'natural' habitats. It was found that 84.2% of the item *as a result* distribute in the sentence-initial position in the Han CH subcorpus, while 61.5% distribute in the sentence-initial position in the Han EN subcorpus. It means that both Chinese and English students tend to place the item *as a result* in the initial position of a sentence, with Chinese students more likely to use it in this way.

For the medial position of the item *as a result*, students use it in two ways in the Han CH-EN corpus. Firstly, it is used with the conjunction *and* to introduce a clause in a sentence. For example,

The idea of increasing downward communication to employees is in an effort to make them more aware of reasoning behind business decisions *and as a result*, it is hoped they will become more committed to the organization.  
(EN2ESHLTM-3040d)

In the example above, the English writer used the item *as a result* with the conjunction *and* to introduce a clause which as a result of employees to the organization. It was found out that 80% of the sentence-medial position *as a result* occur in the way of "and as a result" in the Han EN subcorpus, while no sentence-medial position *as a result* in the Han CH subcorpus occurs in this way. It means that when English students use the item *as a result* in the medial position of a sentence, they tend to use it with *and*, while no Chinese students use it in this way in the medial position of a sentence.

For the medial-position *as a result* in the Han CH subcorpus, it is used independently but not with the conjunction *and* to connect two clauses, which

might be an inappropriate use of this item because it is not a conjunction to introduce a clause in a sentence. For example,

While for Goffman, his discussion did not attempt to go beyond the institutional level (the mental hospital), *as a result* a microscopic research was generated. (CH4ESSOC-0350c)

In the example above, the Chinese students used the item *as a result* to introduce a clause as a result on the generation of the microscopic research. It was found out that all sentence-medial position *as a result* in the Han CH subcorpus is used in this way. As shown at the beginning of this section, however, the proportion of the sentence-medial position *as a result* in the Han CH subcorpus is small, the number of is not big. It was found that totally there are three times of *as a result* used as a conjunction, which are from three texts of two Chinese students. In the Han EN subcorpus, *as a result* is also used in this way. For example,

Companies in the industry are becoming aware of this and are reacting to it, *as a result* supplier power may increase in the future. (EN4CSBUS-0289e)

In the example above, the English student also used the item *as a result* to introduce a clause to show the effect of the increase of the supplier power, which might be inappropriate as it was used a conjunction. It was found that only one *as a result* was used in this way in the Han EN subcorpus.

In short, for sentence-medial position *as a result*, Chinese students used it all as a conjunction, which might be inappropriate. English students, however, used with the conjunction *and* to introduce a clause in most cases, which is appropriate.

#### 6.3.6.5 The use of *consequently*

According to Table 6.3.6, English students use the item *consequently* slightly more frequently than their Chinese counterparts (1.109 vs. 1.101 per 1000 words), but there is no statistically significant difference ( $p > 0.05$ ) for the relative frequency. We also noticed that Chinese students use the item *consequently* as frequently as the item *as a result* (1.101 per 1000 words) as a consequence marker in the *therefore* group, which might suggest that Chinese students do not have preference for using the two items. This phenomenon might be explained by the explanation of the item *consequently* in the Lea et al. (2014: 160), which is “as a result”. The item *consequently* can be used in the initial position of a sentence in the Han CH-EN corpus. For example,

*Consequently*, CFD (Computational fluid dynamics) and CAD (Computer aided design) are employed by engineers to design a car, and immediately simulate the airflow around it, incorporating environmental parameters like wind speed and direction. (CH2EXENG-0254f)

*Consequently*, Bull the pluralist always maintained that 'world order is ... better served by accepting the compact of coexistence than in seeking to overthrow it in the name of some higher morality'. (EN4ESPOL-0255e)

In the first example above, the Chinese student used the sentence-initial *consequently* to introduce the result on the using of CFD and CAD by engineers. In the second example, similarly, the English writer used the item *consequently* to introduce the argument of Bull the pluralist on the world order. It was found that the majority of *consequently* occur in the initial position of a sentence in the Han CH and Han EN subcorpora, accounting for 78.6% and 91.7% of the total number of the item respectively.

For the non-sentence initial position *consequently*, there are two types in the Han CH-EN corpus. Firstly, it occurs after the conjunction *and*, for example,

*And consequently*, this report advocates a reinforced program for further organizational development - Electronic Information Management System underlined by a governance framework.  
(CH4ESENG-0343a)

*And consequently* only labor which manifests itself in commodities... is labor for which capital is exchanged.  
(EN4ESBUS-0073d)

In the first example above, the Chinese student used the non-sentence initial position *consequently* with a conjunction *and* to introduce the advocate of the report. In the second example, similarly, the English writer used the item *consequently* with *and* to introduce the result on labour. It was found that the collocation of *and consequently* accounts for two of three non-sentence initial position *consequently* in the Han CH subcorpus, which from two texts of two Chinese students. There is only one occurrence of the *and consequently* in the Han EN subcorpus. It means that although the occurrence of *and consequently* is not frequent in the Han CH-EN corpus, both Chinese and English students used it in their academic writing to show the consequence relationship.

The other type of non-sentence initial position *consequently* is that the item *consequently* occurs after a semicolon between two clauses in a sentence. For example,

It is the labour time of an individual, his labour-time, but only as labour-time common to all; *consequently* it is quite immaterial whose individual labour time it is. (CH4ESSOC-0319a)

In the example above, the Chinese student used the item *consequently* after a semicolon between two clauses to introduce the result on individual labour time. This type of non-sentence initial position *consequently*, however, is not common. It only occurs once in the Han CH subcorpus, and does not occur in the Han EN subcorpus.

#### 6.3.6.6 The use of *as a consequence*, *accordingly* and *thereby*

According to Table 6.3.6, the two consequence items *as a result*, *accordingly* and *thereby* have fairly low relative frequency compared with other items in the *therefore* group, so they are presented together in this section. The characteristics of the three items are presented in order in this section.

It was found that both Chinese and English students in the Han CH-EN corpus do not use the item *as a consequence* frequently (0.018 vs. 0.003 per 1000 words), and there is no statistically significant difference ( $p > 0.05$ ) for the relative frequency. Both Chinese and English students use the item *as a consequence* at sentence-initial position. For example,

Meanwhile, it is also identified as a powerful factor within the decision-making process for potential travellers in the anticipation stage (Gartner, 1993). Hunt (1975) even claimed that "images are more important than tangible resources". As *a consequence*, the Scottish government would like to give an image which shows their peaceful and express their concerns on the issue of global poverty and climate change.  
(CH3CSHLTM-3085d)

At this site and many others in the uplands, loss of trees and decrease in vegetation cover and grazers (mainly wild animals) prevented regeneration. *As a consequence*, soil

degradation by podsolisation occurred and much blanket peat developed (Simmons, 1969). (EN4EXBIO-6007c)

In the first example above, the Chinese student used the sentence-initial as a *consequence* to introduce the result of what the Scottish government would like to do. Similarly, in the second example, the English writer used the sentence-initial as a *consequence* to introduce the result on soil degradation the development blanket peat.

For the item *accordingly*, although the occurrences in the Han CH and Han EN subcorpus are not frequent, it was found that English writers used it more frequently than their Chinese counterparts (0.058 vs. 0.014 per 1000 words). There is, however, no statistically significant difference for the relative frequency ( $p > 0.05$ ). According to Lea et al. (2014: 7), the item *accordingly* is explained as “for that reason” and is said to be “used especially at the beginning of a sentence”. It was found that both Chinese and English students tend to use it in the sentence-initial position. For example,

However, it is unacceptable for the government to protect the development of the society and economy by depriving or destroying their people's social and economic interests and rights. *Accordingly*, reform has to be brought into effect to make Britain's law correspond with the regulations acknowledged by the international obligations. (CH4ESBUS-0081a)

The society of states is not taken to be the ultimate form of political organisation for humankind; it is regarded as the ultimate form of political organisation in a world divided among states and governed by anarchy. *Accordingly*, the order-justice paradox, which exists in international politics, is integral to

Bull's theory and it provides the intuitive basis for further investigation and deliberation. (EN4ESPOL-0255e)

In the first example above, the Chinese student used the sentence-initial *accordingly* to introduce the result on the reform about Britain's law. In the second example, similarly, the English writer used the sentence-initial *accordingly* to introduce the result on the order-justice paradox. In the Han CH subcorpus, all the items of *accordingly* occur in the sentence-initial position. Similarly, in the Han EN subcorpus, 71.4% of *accordingly* occur in the sentence-initial position.

For the non-sentence initial position *accordingly* in the Han EN subcorpus, they occur with the conjunction *and* in a sentence. For example,

The joint that is hardest struck is usually the hip, and  
*accordingly* research has been more focused in this area.  
(EN3DSENG-0249b)

In the example above, the English writer used the item *accordingly* after the conjunction *and* to introduce a clause as a result on focus of the research. The non-sentence initial position *accordingly* does not occur in the Han CH subcorpus, but only occurs in the Han EN subcorpus, which means only English students use *and accordingly* in their academic writing.

The third item in this section is *thereby*, which does not occur frequently, with 0.015 and 0.003 per 1000 words respectively in the Han CH and Han EN subcorpus, and there is no statistically significant difference ( $p > 0.05$ ). The item *thereby* is explained as “used to introduce the result of the action or situation mentioned”, which is similar to the explanation of *therefore*, that is, “used to introduce the logical result of something that has just been mentioned” (Lea et al. 2014: 829). The close meaning of two items seems to make both Chinese

and English writers confused, which can be shown from the position of the item in a sentence in their writing. For example,

Here a feigned case as an example of analyzing two homologous nucleotide sequences is illustrated in figure 7. Recalling the mutations in nucleotides, substitutions may be caused by transitions, transversions, deletions, insertion and inversion. *Thereby*, the differences can be determined at three nucleotide sites that are marked in figure 7, within the region contain twelve mutations. (CH2CRBIO-0036b)

The bending stress is FORMULA FORMULA, where FORMULA has been calculated based on the assumption that FORMULA. *Thereby* we have a factor of safety of 120 compared with the ultimate tensile strength of the material of 500 MPa, based on a of 60 degrees. (EN3DSENG-0023e)

In the first example above, the Chinese student used the item *thereby* to introduce the result on the determination of the differences. Similarly, the English students used the item *thereby* to introduce the result on the factor of safety. It can be noted that both Chinese and English students used the item *thereby* in the sentence-initial position. They may consider the position of the item *thereby* could be similar to the item *therefore*. However, sentence-initial *thereby* has not be identified in Lea et al. (2014), and occurs rarely in the BNC (0.12 per million words). In short, although the sentence-initial *thereby* occurs in the Han CH-EN corpus, it is rarely used, which is similar to the occurrence in the Lea et al. (2014) and BNC (text type: written books and periodicals).

It should be noted that the item *thereby* occurs with “v-ing” form in both Han CH and Han EN subcorpus, which might be employed appropriately. However, the use of “*thereby* + v-ing” has not been considered as a transition marker, so it has not been investigated further in the study.

### 6.3.7 The use of *yet*

The item *yet* is used as a transition marker which shows the consequence relationship in the Han CH and Han EN subcorpora (0.077 vs. 0.160 per 1000 words), and there is no statistically significant difference for the relative frequency ( $p > 0.05$ ). According to Lea et al. (2014: 915), the item *yet* can be adverb or conjunction, in which, as an adverb, it is explained as “despite something that has just been mentioned”. It is noted that a transition is usually used as one part of speech. For example, the item *however* as a transition is an adverb. It is not common for a transition to be used as a conjunction and adverb like *yet*. Two examples of *yet* as adverb are firstly presented below.

Rewards are particularly effective in enhancing short-run productivity, because rewards systems are often designed to be short-term oriented. *Yet* incentive plans are not effective in the long run, because employees are only motivated by short-term incentives. (CH1ESBUS-0271c)

Furthermore, notions of a knowledge economy are related to discussions on 'flexible specialisation' (Piore and Sabel 1984), 'post-Fordism' and the regulationist concept of 'neo-Fordism' as each of these delineates a form of change related to the crisis of manufacturing in the 1970s and persistent advances in new technology (Amin 1994). *Yet*, it is acknowledged that these concepts are related, not interchangeable. (EN4ESBUS-0073a)

In the first example above, the Chinese student used the item *yet* to show that in the long run, there is no effectiveness for the incentive plan, which indicates the concessive relationship with the effectiveness of the rewards in the short-term. In the second example, similarly, the English student used the item *yet* to

show that these concepts are not interchangeable, which indicates the concessive sense with related relationship of these concepts in the preceding sentence. It can be noted that in both examples, the item *yet* is used as an adverb in the sentence-initial position. It was found that 69.2% of transition marker *yet* were used in the sentence-initial position in the Han CH subcorpus, while 84.0% were used in the sentence-initial position in the Han EN subcorpus. It means that both Chinese and English students tended to place the consequence *yet* in the initial position of a sentence.

The item *yet* can be used as a conjunction and explained as “despite what has just been said” (Lea et al. 2014: 915) in the Han CH-EN corpus. For example,

Averages of 2003 figures are taken to a basis of 12 months in this report, *yet* it is believed that there are deviations with the true view of the Group performance. (CH3CRHLM-3018e)

The original aim was to "determine the extent to which cell-phone conversations may interfere with driving" *yet* the project can only truly conclude that 'conversing on either a handheld or handsfree cell-phone led to significant decrements in simulated-driving performance'. (EN4CRPSY-0171b)

In the first example above, the Chinese student used the item *yet* to introduce the claim that there are deviations which shows the concessive sense with the number of figures taken in 12 months expressed in the preceding clause in the sentence. In the second example, similarly, the English writer used the item *yet* to show that the conclusion about the project is different from the original aim, which indicates the concessive relationship between the two clauses in the sentence. It can be noticed that the item *yet* in the two examples is used as a conjunction in sentence-medial position to introduce a clause in a sentence. It was found that 31.8% of the instances of the item *yet* were used in this way in the Han CH subcorpus, while 16% were used in the Han EN subcorpus. It

suggests that both Chinese and English students do not prefer to use the item *yet* in the medial position of a sentence as a conjunction.

It was found that the item *yet* was also used with the conjunction *and* to introduce a clause. For example,

Modality has been discussed by philosophers, in relation to logic, for over 2,000 years *and yet*, as De Haan (1997) points out, it is only since the 1960 s that it has become a subject of analysis for linguists. (EN4ESLIN-6038a)

In the example above, the English student used the item *yet* to introduce a claim that modality has become a subject for linguistics since 1960s, which shows the concessive sense with the fact in the preceding clause that it has been discussed for over 2000 years. It was found that the item *yet* was rarely used in this way in the Han EN subcorpus.

### **6.3.8 The use of *still***

The item *still* was also identified as a consequence marker in the Han CH-EN corpus. It occurs more frequently in the Han EN subcorpus (0.016 per 1000 words) than in the Han CH subcorpus (0.007 per 1000 words), but there is no significant difference ( $p > 0.05$ ). Similar to other consequence items with concessive sense, it is explained as “despite what has just been said” (Lea et al. 2014: 783), and it occurs in the initial position of a sentence in the Han CH-EN corpus. For example,

On pages 4, 7, 8, 10 and 11 of the annual report it is learned that while the Embedded computing business has enjoyed increases in profit margins the other of Radstone groups businesses, EMS (Electronic Manufacturing Service), has suffered profit margin losses. *Still*, overall the group profit

margins have climbed and look good for shareholders.  
(EN4CSENG-0146d)

In the example above, the English writer used the item *still* to introduce the result on the increase of the overall profit margins, which shows the concessive sense with the profit margin losses for the Radstone groups businesses discussed in the preceding sentence. It was found that the use of the item *still* at the sentence-initial position is rare. It only occurs in the Han EN subcorpus, but not in the Han CH subcorpus. In addition, the use of sentence-initial *still* has not been shown in the examples provided in the Lea et al. (2014), but it occurs in the BNC (text type: written books and periodicals) with low frequency (10.05 per million words). To conclude, the use of *still* in such way might be acceptable, but not frequent.

In fact, the item *still* as a consequence transition marker was identified to be more frequently used after a contrast or concessive item in a sentence than using independently in the initial position of a sentence. For example,

We don't know whether we can do t test for this microarray,  
since the requirement for a t test is equal variance and  
normally distributed. To test equal variance, F test can be  
applied. *However, still* because there are too few observations,  
this test can not tell too much. (CH4MRBIO-0162e)

In the example above, the Chinese student used the item *still* after the contrast *however* to introduce the reason that there are too few observations, which shows the concessive sense with the fact F test can be applied expressed in the preceding sentence. As for the contrast *however*, it is used to introduce the fact that this test cannot tell too much, which indicates the contrast relationship with what expressed in the preceding sentence. Therefore, it might be argued that the use of *still* with *however* shows a combination of concessive and contrastive senses in the sentence. The use of *still* with *however* is rare in the

Han CH subcorpus, and such use in this way has not be found in the Han EN subcorpus.

Similar use of the item *still*, however, was identified in the Han EN subcorpus. It was found that *still* is used after consequence items. For example,

The mesh that was created in Cosmosworks was the finest available, *yet still* elements appear quite course on smaller components. (EN3DSENG-0249b)

In the example above, the English student used the item *still* with the consequence item *yet* to introduce the clause on elements, which indicate the concessive sense with the fact that the mesh was the finest available in the preceding clause. The use of *still* with consequence item is rare in the Han CH-EN corpus, but such example above was only found the Han EN subcorpus.

## **6.4 Discussion of consequence**

Based on the findings of the consequence items presented in the last section and in response to the first three research questions (see Chapter 2), the features of the use of contrasts are presented in this section, showing the similarities and differences of the writing by Chinese and English students. In the first two sub-sections, I consider how students employed consequences across disciplines and genre families and discuss the reasons for this. Then the third and fourth sub-sections look at the characteristics of specific consequence items used by Chinese and English students.

### **6.4.1 Consequences across the disciplines**

For the use of consequence across disciplines, both L1 groups of Chinese and English students used more consequences in Law than in Biology and Food

science, which is general consistent with earlier studies of research articles that found more consequence items in non-sciences (Peacock 2010).

Table 6.4: Consequences in three disciplines

Discipline	CH	EN	P-value
	per 1000 words		
Law	6.594	5.649	0.629
Biology	5.218	2.244	0.036
Food Science	4.670	4.549	0.889

As Table 6.4 shows, the non-science discipline Law contains more consequence items than in the science disciplines of Biology and Food Science in both groups of Chinese and English students. The finding is in line with Peacock (2010), in which the non-science disciplines (on average 3.172 per 1000 words) of Economics, Language and Linguistics, Management, and Psychology contain higher frequencies of consequence items than the science disciplines (on average 2.426 per 1000 words) of Chemistry, Mathematics, and Neuroscience. It is noted that the average frequencies of both types of discipline are generally lower than the frequencies of them in my study. While non-sciences generally contain more consequence items than in sciences, there are exception disciplines in my study and Peacock's (2010) research. For example, in my study, only in English students' writing, the non-science discipline Business contains more consequence (7.535 per 1000 words) items than in the science disciplines, while in Chinese students' writing, it contains fewer consequence items (4.749 per 1000 words) than in science disciplines of Biology (5.218 per 1000 words) and Engineering (4.749 per 1000 words). Similar exception occurs in Peacock's study, in which the science Computer science contains more consequence items (2.353 per 1000 words) than in the non-science Language and Linguistics (2.204 per 1000 words). This suggests that students in non-science disciplines have a general preference of using more consequence items, but there are still exceptions.

The cause of the greater use of consequence items in non-sciences than in sciences, with some exceptions, might be shown by the features of consequence items and the two types of discipline. The consequence items mark two relations. One relation is as claimed by Hyland (2005: 50) to “tell reader that an argument is being countered”, e.g. *although*, *nevertheless* and *while*. It is arguable that this relation is one feature of argument, which is to some extent similar to the fact that the contrastive relation is the feature of argument (see discussion of contrastive items in Section 5.8.1). For example, the item *while* may be considered to contain both contrastive and concessive relations (Biber et al 1999: 849), but a concessive relation is regarded as one type of consequence relation (Hyland 2005). Other examples are *though* and *although* that may be regarded as items that show contrast relations (Swan 2005: 38), whereas Biber et al (1999: 842), report they mark concessive relations. In my study, the items, *although* and *though*, fell in the category of concession, one type of consequence item. These distinctions on the categorization between contrast and concession of these examples suggest that their features are similar in some cases, so consequence items, especially those containing concession sense, may be similarly used for argumentation as contrast items.

As seen in the discussion of contrast (see Section 5.8), Becher and Trowler report that the “soft-pure” and “soft-applied” disciplines embody the features of “reiterative; dispute over criteria for knowledge verification and obsolescence; concerned with particulars qualities, complication; personal; lack of consensus over significant questions to address; results in understanding / interpretation” and “functional; utilitarian (know-how via soft knowledge)”. Hyland (2005: 170) also claims that soft fields are “interpretive and produce discourses which often recast knowledge as sympathetic understanding, promoting acceptance in readers through an ethical rather than a cognitive progression.” They suggest that disciplines of non-sciences contain more argumentation. As a result, the type of consequence items which counter argument may be used more

frequently in the non-sciences or soft field than in the sciences or hard field. In my research, the discipline of Law in soft field contains more consequence items than the disciplines of Biology and Food Science in hard field. It should be noted that the discipline of Law is a soft-applied discipline. As Becher and Trowler (2001: 36) pointed out that it “uses case studies and case law to a large extent”, and “results in protocols / procedures”. Therefore, the discipline of Law may be slightly special in the soft field, and students in this discipline use more consequence items than in hard field of Biology and Food Science.

In contrast, the exceptional disciplines that do not show the feature of greater use of consequence items in non-sciences may reflect the feature of other part of consequences items. Hyland (2005: 50) claims one type of consequence item “tell[s] readers that a conclusion is being drawn or justified (*thus, therefore, consequently, in conclusion, etc.*)”. This type of consequence item marks the other kind of relation which is different from those countering arguments discussed above. Since this type of consequence item does not show the feature of argumentation in non-science disciplines, and it just shows the relation to drawing conclusion, they may be less frequent in non-science disciplines than in science disciplines. As a result, there is the exception of the non-science discipline Business that contains the same use of consequence items (4.749 per 1000 words) as in the science discipline Engineering (4.749 per 1000 words) in Chinese students’ writing, while the non-science discipline Law (5.649 per 1000 words) contains fewer consequence items than the science discipline Engineering (5.743 per 1000 words) in English students writing. Likewise, in Peacock (2010), the non-science discipline Language and Linguistics contains fewer consequence items than the science discipline Computer Science. In short, these results suggest the relation of the consequence items relating to drawing conclusion with the disciplines.

The greater use of consequence items in non-science disciplines may be related to the fact that non-science disciplines contain fewer visuals and lists than the science disciplines. The more visuals and lists in sciences may need

fewer discourse markers like contrasts, as shown in the discussion of contrasts (see Section 5.5.1). Because of the similarity of concessive relation marked by consequence items and contrastive relation marked by contrasts, consequence items may occur less frequently in sciences since the relation has been presented by statistics or information in visuals and lists. In contrast, consequence items occur more frequently in the non-sciences since the type of soft disciplines involves more theory or concepts instead of statistics, so the concessive relation may need to be marked explicitly through discourse markers. For example,

Gough (1972) infers that Marx would analyse the latter range of workers as unproductive based on 'his analysis of the determination of needs under capitalism'. *Nevertheless*, Marx would consider the expansion in number of workers producing luxury, unnecessary goods as productive as they produce use-values. (EN4ESBUS-0073d)

In the example above, the English student in the discipline of Business employed the consequence item *nevertheless* in the second sentence to show the different opinion from Marx, which is countering the argument from Gough in the first sentence. In this case, the consequence item seems needed to mark the concessive relation of two abstract ideas. Therefore, consequence items seem to be needed in the non-sciences due to the fewer visuals and lists characteristics of these disciplines.

The final feature of consequence items in disciplines is shown in the comparison between Chinese and English students' writing. Between the two groups of students, there is no statistically significant difference for the use of consequence items in four disciplines, i.e. Law, Engineering, Business and Food Science. In Biology, however, Chinese students used statistically significantly more consequence items than their English counterparts. One cause of the result might be the greater use of some certain items. For

example, Chinese students used statistically more consequence items of *since* and *thus* in their writing than English students. More features of the two items will be discussed in the following section.

#### 6.4.2 Consequences across the genre families

As section 6.6.2 shows, the first feature of consequence items is that they are used more frequently in discursive genre families of Critique and Essay than in more technical genres of Methodology Recount and Explanation. The second feature is that the relative ordering of the genre families is the same for both groups of students: Essay > Critique > Methodology Recount > Explanation (see Table 6.5).

Table 6.5: Consequences in four genre families

Genre	CH	EN	P-value
	per 1000 words		
Essay	5.975	5.654	0.708
Critique	5.693	5.445	0.901
Methodology			
Recount	5.590	4.688	0.206
Explanation	4.598	4.087	0.857

The different use of consequence can be explained from the perspectives of the social purposes and stages of these genre families. The genres of Essay and Critique require students to develop powers of independent reasoning (Nesi and Gardner 2012: 36). Specifically, the social purpose of the two genres are associated with demonstrating / developing students' ability of evaluation as well as demonstrating / developing students' ability to employ critical thinking skills. Therefore, of the two genre families, the features of "evaluating", "assessing", and "critiquing" the object of study may be closely associated with consequence items that mark relations of drawing or justifying conclusion (e.g.

*therefore*) as well as countering argument (e.g. *nevertheless*). The feature can be also reflected by the stages that Nesi and Gardner point out in the two genre families. The Essay genre includes the stage of “series of argument, conclusion”, and the Critique genre contains the stage of “evaluation with optional tests” (2012: 38).

The other two genre families, however, do not have the features discussed above. The genre families of Methodology Recount and Explanation are primarily associated with description. Nesi and Gardner (2012: 36-37) claim the social function of Explanation is to require students to demonstrate knowledge and understanding, and with specific social purpose of demonstrating / developing understanding of the object of study and the ability to “describe and / or account for” its significance. Students’ describing ability reflects on the fact that Explanation includes stages of “descriptive account and explanation”. Therefore, the Explanation genre does not incorporate the feature of greater use of consequence items that mark relations of drawing conclusions and countering arguments.

For the Methodology Recount genre, the social function is to build research skills and the social purpose is “to demonstrate / develop familiarity with disciplinary procedures, methods and conventions for recording experimental findings” (Nesi and Gardner 2012: 40). Through the function and purpose, they do not suggest this genre relies heavily on the items that present drawing conclusion or countering argument. The stages of Methodology Recount, however, includes “describes procedures undertaken by writer and may include IMRD (i.e. introduction, methodology, results, and discussion) sections”, which incorporate discussion stage. Therefore, Methodology Recount has potentially more discussion than Explanation, but this is a small part of text compared with Essay and Critique whose main stages are related to discussion and evaluation. The different levels of relying on consequence have been reflected by the findings of my research. The relative frequency of consequence in Methodology Recount is lower than in Essay and Critique (Essay > Critique >

Methodology Recount). The relative frequency of consequence in Methodology Recount genre is higher than in Explanation genre (Methodology Recount > Explanation).

#### **6.4.3 Specific consequence items with significant difference**

From the perspective of the discipline, the features of consequence items have been discussed in the last section. In this section, I focus on the characteristics of specific consequence items in the Chinese and English students' writing. For specific consequence items, my research investigates 21 items, in which there is one more item (i.e. *even if*) than in the Hyland's (2005: 220) list, which might be a contribution for adding a new item in the category. This section firstly considers the general features of consequence items. Then the consequence items with statistically significant difference between Chinese and English students' writing are discussed. Finally, I consider the features of items without significant difference.

Previous studies report different frequencies of the consequence items for Chinese and English students' writing. Lei (2012) and Chen (2006) suggest that Chinese students generally make greater use of consequence items than professional journal writers, whereas Lei (2012: 274) found that Chinese students underuse some consequence items (e.g. *nonetheless*, *nevertheless* etc.) and Leedham (2015: 103) suggests that Chinese students made significantly fewer use of some consequence items (e.g. *therefore*, *hence*, etc.) than English students. Milton and Tsang (1993), however, claim that more accurate finding should be based on the comparison of closely matched corpora, which is in line with my research. The findings of my research may inform the previous studies since the highly matched corpus was compiled and the linguistic features were identified from the specific contrastive items in details.

According my research, there is no statistically significant difference ( $p>0.05$ ) of the overall occurrences in Chinese and English students' writing (5.401 vs. 5.202 per 1000 words). For most consequence items, there is no statistically significant difference between the two L1 groups students' writing, while there are significant difference for some items. Chinese students make significantly more use of three consequence items (i.e. *since*, *thus* and *nevertheless*), while English students make significantly more use of one consequence item (i.e. *whilst*). This suggests that there are distinctions between the findings in my research and in the previous studies since the consequence items were examined in the closely matched corpora in my study, but no similar corpora were compiled or different methodology was adopted. For example, Leedham (2015: 44) compares Chinese and English students' writing, but she used the keywords analysis, which is different from my study, only a few consequence items with high frequency were investigated, i.e. *nevertheless* and *therefore*.

Compared with previous studies, features of consequence items were investigated in detail and new findings of these items were revealed in the highly matched Han CH-EN corpus. The consequence item *since* is one of the three items (i.e. *since*, *thus* and *nevertheless*) which occurs statistically significantly more in Chinese students' writing than in their English counterparts' writing (0.628 vs. 0.331 per 1000 words). The frequency of the item (0.400 per 1000 words) of academic prose is reported in Biber et al (1999: 842), which is lower than the Chinese students' frequency, while higher than and close to the English students'. *Since* as a consequence item incorporates similar meaning with another consequence item *because*, so the similarity may make students confused when choosing to use one of them. In order to reveal the difference of the two items, their frequencies were compared in my study, which shows how frequently the sophisticated students make use of them.

As Figure 6.10 shows, both L1 Chinese and L1 English students used more consequence *because* than the consequence *since*, which seems not to have been discussed in previous studies or dictionaries, as well as reference books.

The greater use of *because* than *since* might be reflected from the semantic relations that the two items can express. The item *because* is only used for reason, but *since* can be employed for time or reason. Compared with *since*, the item *because* plays the typical role of marking the reason relationship. In my study, the item *since* was only investigated as a consequence item to express reason, but not to express time. Therefore, it is reasonable for students to use more *because* than *since*. The feature of greater use of *because* is striking in English students' writing since it was found in my research that the use of *because* is approximately twice as great as the use of *since* (0.628 vs. 0.331 per 1000 words). The finding is in line with Biber et al. (1999: 843), in which the use of *because* is around 2.5 times as great as the use of *since* (1.000 vs. 0.400 per 1000 words).

While Chinese students use more *because* than *since*, they use substantially more *since* than English students. The reason might be that in the teaching of English writing for Chinese students, they were encouraged to use synonyms, and they may believe that the consequence item *because* was too common, so they tried to use *since* which has the similar meaning but in different form in their writing.

Apart from incorporating more semantic roles, *since* has subtle difference with *because*. According to Longman Dictionary of Contemporary English (2014: 140), *since* is "used when giving the reason why someone decides to do something or decides that something is true". The feature is shown in the following example,

From my analysis, I feel I can reasonably confidently conclude that the assessment DNA sequence was obtained from a T 4 -like bacteriophage such as S-PM 2, *since* it appears to contain many homologous genes to those found in T 4. (EN2MRBIO-0067a)

In the example above, the consequence item *since* is used by an English student to give a reason to decide to draw a conclusion. It suggests that *since* is used in a context which is associated to do something or is associated to the trueness of something. Compared with *since*, *because* is “used when giving the reason for something”. It suggests that for the item *because*, there is no limitation for the use as *since*, and it can be used in any context to provide reasons.

Another difference between *since* and *because* is revealed through their percentage of their occurrence in sentence-initial position. The sentence-initial position *since* occurs substantially more frequently than *because* in the position for both Chinese and English student groups. Chinese and English students use respectively 12.3% and 3.1% of the overall *because* in the sentence-initial position to introduce the reason, while they use respectively 49.5% and 26.5% of the overall *since* at the same place. This suggests that, the consequence item *since* tends to be used more in the sentence-initial position than *because* to introduce a reason in a sentence, Chinese students have marked preference to use the two items in sentence-initial position than their English counter parts.

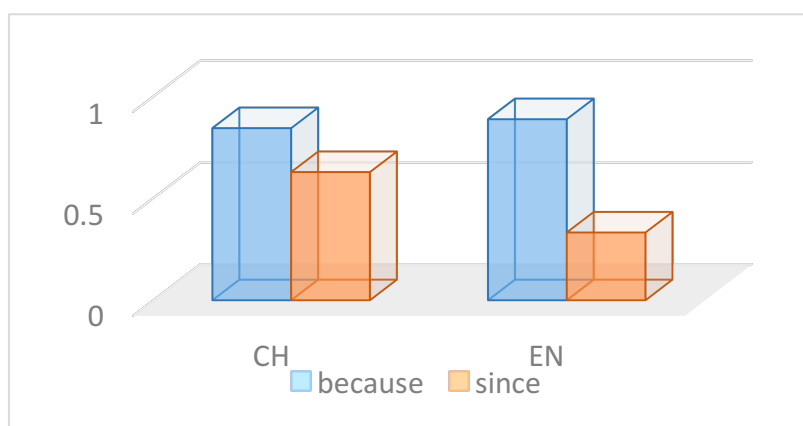


Figure 6.10: Consequence *because* and *since* in the Han CH-EN corpus

*Thus* is the second consequence item which is statistically significantly more used by Chinese students than English students (0.601 vs. 0.340 per 1000

words). Leedham (2015: 103) also reports Chinese students used statistically significantly more *thus* than their English counterparts, but the frequencies are 1.200 and 0.400 per 1000 words respectively. Her results suggest a bigger difference for the use of the item between Chinese and English students. It should be noted that her research only investigated undergraduate students' writing in three "hard" disciplines (i.e. Biology, Economics and Engineering), which is not as broad as the investigation of the Han CH-EN corpus. In addition, the item *thus* is the most preferred consequence item in professional academic writing, with 0.700 per 1000 words in Biber (1999: 887) and 0.779 in Peacock 2010: 21. It does not, however, have such preference in students' writing, compared with other items (e.g. *therefore* and *so*), as shown in Leedham's and my study.

My research provides the features of the item *thus* in details in both Chinese and English students' writing, compared with previous studies, like Leedham (2015), only giving the frequency of the item. Firstly, a pattern of co-occurrence of *thus* with *and* was identified in English students' writing, but it was not found in Chinese students' writing. For example,

In my opinion this seems to be an exorbitant erosion of one of the  
fundamental principles and protections of English law *and thus*  
this is my motivation for choosing it as the topic for my essay.  
(EN3ESLAW-0411c)

In the above example, the English students made use of *thus* to mark the consequence relation, while before the consequence item there is an addition item to add another relation in the same position of the clause. Biber et al (1999: 80) claims "linking adverbials may be preceded by coordinators", which seems more complex than the sole use of *thus*. It could be argued that the complex co-occurrence might be difficult for Chinese writers or regarded as a wrong use, so they did not use it in their writing. For English students, however, the use of *and thus* seems acceptable. Our investigation of the frequency of it in

the British Academic Written English corpus (BAWE) seemed to further prove the argument. The frequency of *and thus* in all L1 Chinese writing the BAWE corpus is 8.04 per million words, while the frequency of it in all L1 English writing (85.89 per million words) is ten times more than in the L1 Chinese writing.

The second pattern of *thus* is that it is used to connect two clauses within a sentence by both Chinese and English students. This feature seems not to have been mentioned in the previous studies, but it is worthy of note by writing tutors and students since it might be inappropriate language. For example,

The strain varies inversely with the square of the thickness, *thus* we can say that this is the most influential parameter.  
(EN2MRENG-0243a)

In the example above, *thus* was used as a consequence item but it was used to connect two clauses within a sentence. According to Lea et al. (2014: 835), however, when *thus* expresses "as a result of something just mentioned", the part of speech is adverb. Therefore, the consequence *thus* might not be used appropriately in these examples. For Chinese students, there might be L1 language transfer, because "所以 (suo yi)" might be equivalent of consequence *thus*, which can be used between two clauses within a sentence. For L1 English students, they may not be familiar with the part of speech of *thus* since they may lack English grammar lessons in their education. The possible inappropriate use of consequence *thus* might also reflect that the nature of English may be changing through Chinese and English 'non-standard' uses.

Finally, *thus* is interchangeable with the consequence items *therefore* and *hence* in most cases (Biber et al 1999: 889). It suggests that the similar sense of them make students confused about the use of them. In my study, the frequencies of them were provided to make a clearer picture to show how frequently successful Chinese and English students make use of them in their

writing, which might be helpful for writing tutors and students. The likeliness of the three items with similar meaning is: *therefore>thus>hence* for both L1 groups of students.

*Nevertheless* is the third consequence item which is statistically significantly more used by Chinese students than English students (0.179 vs. 0.045 per 1000 words). There is, however, a disagreement about the frequency of the item. Lei (2012: 274) found that Chinese students underuse *nevertheless*, while Leedham (2015: 44) reports a greater use of the item by Chinese students than English students (0.168 vs. 0.055 per 1000 words). It suggests that Leedham's report is close to my findings since the comparison in our studies are between Chinese and English students, while Lei's comparison is between Chinese students and professional journal writers.

Previous studies only provide the frequency of *nevertheless*, but do not report other features of the item in students writing. My study had a further examination of the item, its features in Chinese and English students' writing were revealed. Firstly, a pattern of co-occurrence of "*but nevertheless*" was identified. For example,

Motivation can help towards this *but nevertheless* the will of an individual is their own. (EN1ESBUS-0212c)

Biber et al (1999: 80) claims "linking adverbials may be preceded by coordinators". This collocation seems more complex than the sole use of *nevertheless*. It could also be argued that the complex co-occurrence might be difficult for Chinese writers or regarded as a wrong use, so they did not use it in their writing. For English students, the use of *but nevertheless* seems acceptable. Our investigation of the frequency of it in the BAWE corpus seemed to further prove the argument. The frequency of the co-occurrence of *but nevertheless* in overall L1 Chinese writing in the BAWE corpus is 0.24 per million words, while the frequency of it in overall L1 English writing (1.2 per

million words) in the BAWE corpus is around six times more than in the L1 Chinese writing, and they primarily distribute in the Social Sciences and Arts and Humanities (80%). The average frequency of *but nevertheless* in the BAWE is 1.8 per million words, which suggests other L1 students might use it more frequently (see Figure 6.11).

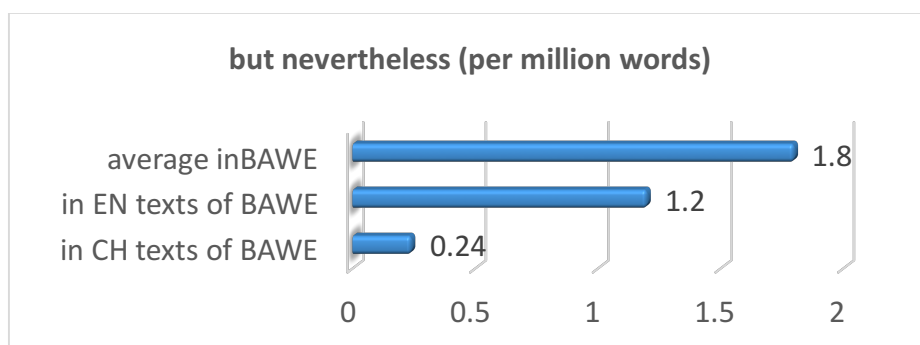


Figure 6.11: The co-occurrence of *but nevertheless* in the BAWE corpus

Another feature of *nevertheless* which has probably not been mentioned in previous studies is the comparison between it and the item *nonetheless* which has the same explanation in the *Oxford Learner's Dictionary of Academic English*. According to my research, Chinese and English students both use substantially more *nevertheless* than *nonetheless*. The finding is in line with the results from my investigation of the whole BAWE corpus and the subset of Written Books and Periodicals in British National Corpus (BNC). In both corpora, the consequence *nevertheless* has the higher frequencies than the consequence *nonetheless*. In addition, we have also noticed that students in the BAWE corpus used the two items more frequently in their writing than expert writers in the written books and periodicals (see Figure 6.12).

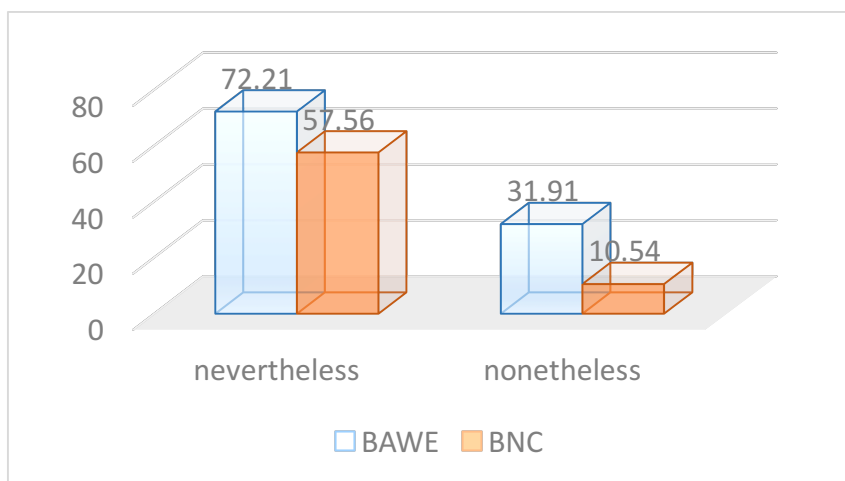


Figure 6.12: *Nevertheless* and *nonetheless* in the BAWE and BNC

Apart from the consequence items used statistically significantly more by Chinese students, English students also make greater use of an item. For example, they use *whilst* statistically significant frequently than their Chinese counterparts (0.005 vs. 0.279 per 1000 words). The feature has not been discussed in previous studies. The reason might be that researchers consider *whilst* as another version of *while* since the item is usually under the entry of *while* in a dictionary, or they may consider *whilst* as archaic.

In fact, further examination shows more features of how Chinese and English students use the two items (see Figure 6.13). English students have the preference to use *whilst* to mark consequence relation, rather than *while* (0.279 vs. 0.062 per 1000 words). In contrast, Chinese students tend to make use of *while* but not *whilst* to mark the consequence relation (0.104 vs. 0.005 per 1000 words). The item *whilst* only occurs once in the Chinese students' writing.

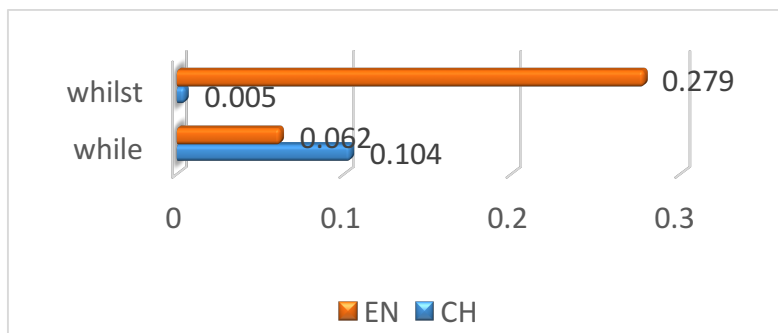


Figure 6.13: *Whilst* and *while* for consequence in the Han CH-EN corpus

Furthermore, the use of *whilst* varies across discipline and genre families. From the disciplinary perspective, as discussed in Section 5.8.3, *whilst* is primarily employed in the non-Science disciplines (i.e. Sociology, Business, HLTM and Linguistics); from the generic perspective, *whilst* is primarily used in discursive genres (i.e. Essay and Critique). The finding is in line with the general investigation of *whilst* in the BAWE corpus.

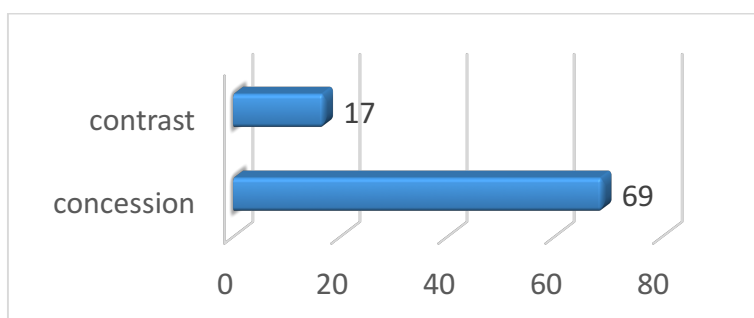


Figure 6.14: *Whilst* in the Han EN subcorpus (Absolute frequency)

In addition, the use of *whilst* varies in terms of marking the relation of contrast and concession, i.e. comparison and consequence. As the Figure 6.14 shows, English students tend to use *whilst* to mark concession relation more than contrast relation (69 vs. 17 times). In short, the item *whilst* is not simply another version of *while*, but there are features which need to be worthy of note.

#### 6.4.4 Specific consequence items without significant difference

Apart from consequence items with significant difference, important features were also found in the items without significant difference between Chinese and English students. The *therefore* group of items is discussed first; then the *although* group of items are the focus; the remaining items are discussed finally.

##### 6.4.4.1 The discussion of *therefore* group

While there is no statistically significant difference for the item *therefore* between Chinese and English students' writing, other characteristics were found for the item. *Therefore* is the item with the highest frequency (1.049 per 1000 words) among the consequence items in English students' writing, but it is the second highest frequent item (0.842 per 1000 words) among the consequent items in Chinese students writing. It suggests that English students use *therefore* more frequently than Chinese students, which is in line with Leedham (2015: 44), but in Leedham finds higher frequencies of the item *therefore* in Chinese and English students' writing (1.005 vs. 1.518 per 1000 words). Biber et al (1999: 887) also report that *therefore* is the item with notable frequency in academic prose (0.600 per 1000 words), which is in line with Peacock's (2010: 21) finding of the item in journal articles (around 0.650 per 1000 words). The findings of these four studies suggest that professional writers used fewer *therefore* than students.

The second feature for the *therefore* group is that the patterns of co-occurrence of consequence items with another transition were identified. For example, "*and therefore*", and "*and consequently*" occur in both Chinese and English students' writing. The co-occurrences of "*and so*", "*and as a result*" and "*and accordingly*" are used by English students, but they are rarely used by Chinese students. It suggests that students try to use complex transitions to play multi-semantic roles at the same position of a sentence, and this may shows sophisticated

writing skills. Between the two groups of students, English students master these skills better than their Chinese counterparts.

Thirdly, when students use the *therefore* group items, they tend to place them in the sentence-initial position for both groups of students, and Chinese students have more striking preference for this position. For example, Chinese students used more “*therefore*”, “*hence*”, “*as a result*”, and “*accordingly*” in their writing than English students in sentence-initial position.

Finally, inappropriate use of the consequence items was identified in both Chinese and English students writing. Both groups of students commonly use “*therefore*” and “*as a result*” as a conjunction in their writing to connect two clauses within a sentence. In addition, English students use *hence* inappropriately as a conjunction, while Chinese students rarely use it in this way.

Another inappropriate use is for the item *thereby*, which is worthy of note. The item *thereby* is explained as “used to introduce the result of the action or situation mentioned” (Lea et al. 2014: 829), and it has close meaning with other consequence items, like *therefore* and *accordingly*. The close meaning of them seems to make both Chinese and English writers confused. For example,

Here a feigned case as an example of analyzing two homologous nucleotide sequences is illustrated in figure 7. Recalling the mutations in nucleotides, substitutions may be caused by transitions, transversions, deletions, insertion and inversion. *Thereby*, the differences can be determined at three nucleotide sites that are marked in figure 7, within the region contain twelve mutations. (CH2CRBIO-0036b)

The bending stress is FORMULA FORMULA, where FORMULA has been calculated based on the assumption that

FORMULA . *Thereby* we have a factor of safety of 120 compared with the ultimate tensile strength of the material of 500 MPa, based on a of 60 degrees. (EN3DSENG-0023e)

In the first example above, the Chinese student used the item *thereby* to introduce the result on the determination of the differences. Similarly, the English students used the item *thereby* to introduce the result on the factor of safety. It can be noted that both Chinese and English students used the item *thereby* in sentence-initial position as other consequence items, like *therefore* and *accordingly*. In these cases, the item *thereby* seems appropriate semantically as *therefore* and *accordingly*, but they are inappropriate grammatically. The sentence-initial *thereby* has not been identified in Lea et al. (2014), and occurs rarely in the BNC (text type: written books and periodicals). This suggests that professional writers rarely place *thereby* in sentence-initial position, so sentence-initial position *thereby* is inappropriate grammatically.

As noted earlier in Section 6.3.6.6, item *thereby* has been used with “v-ing” form in both Han CH and Han EN subcorpora, which might be used appropriately. However, the use of “*thereby* + v-ing” has not been regarded as a transition marker, so I have not examined it further in the research.

#### 6.4.4.2 The discussion of *although* group

In consequence items, the four items of *although*, *though*, *even though* and *even if* were investigated together in my study. Firstly, they have similar meaning, but their frequencies vary. The similar meanings of them may cause students to be confused of their use in their writing. For example, the items *though* and *even though* are explained in the same way as “despite the fact that” (Lea et al. 2014: 832; 289). Despite the similar meanings, Chinese and English students both have the preference of the items in their writing: *although* > *though* > *even if* > *even though* (see Figure 6.15). The Both group of students use more *although* than other items with similar meaning. The finding is in line

with Biber et al (1999: 842) for the investigation of *although* (0.600 per 1000 words) in academic prose, while the item *though* (including *even though*) has a lower frequency of 0.200 per 1000 words.

In my study, the difference in the use of these items in the two groups of students is that Chinese students used more *although* and *though*, but they used fewer *even though* and *even if* than their English counterparts. The reason might be that Chinese students are more familiar with the former two items since they are single adverbs. While previous studies (see Biber et al. 1999; Leedham 2015; Lei 2012; Peacock 2012) involve the investigation of some of these items, fewer comparisons have conducted to give a clear picture of the use of these items.

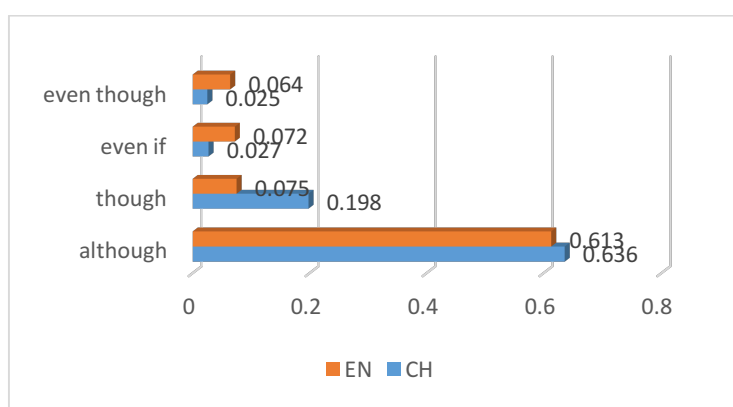


Figure 6.15: The frequencies of the *although* group in the Han CH-EN

The second feature for the use of the group of items is that Chinese students tend to place the consequence clause before the main clause. It was found that Chinese students used 71.7% of *although* to introduce the consequence clause before the main clause, while English students used 61.8% of *although* in the same way. More evidently, Chinese students used 62.2% of *though* to introduce the consequence clause before the main clause, while their English counterparts made use of 13.3% of *though* in the same way. For example,

*Although* tourism brings a considerable benefit to the local economy, it should be remembered that the city exists primarily to meet the needs of those who live and work in, and all the local decision-making should reflect this by putting the needs of local people first. (CH1CSHLTM-3085a)

The main trade union confederations in France are the CGT, the CFDT, the FO, the CFTC, the CFE-CGC and UNSA, *though* it is acknowledged that the FEN and the US-GdD are influential trade unions, primarily in the public sector. (EN4ESBUS-0073c)

The first example above shows the use of *although* by a Chinese student to introduce a clause and place the clause before the main clause. The second example shows the typical use of *though* by an English student to introduce a clause and place the clause after the main clause. Chinese students tend to use them in this way as the equivalent of *although* in Chinese is “虽然 (*suī rán*)”, and it usually introduces the concession relationship at the beginning of a sentence, instead of in the second clause of a sentence. In fact, in Chinese the concessive relationship is marked by two items in a sentence, i.e. “虽然 (*suī rán*)... “但是 (*dàn shì*)”, and their English equivalent is “although...but”. Interestingly, the inappropriate use of “*although...but*” was identified in Chinese students’ writing. For example,

*Although* there was slightly increase in dividends, *but* most of them were still in proposed progress. (CH4CRENG-0223d)

In the example above, the “*although...but*” is used by the Chinese student to mark the concessive relationship. It suggests that Chinese students are influenced by their first language.

#### 6.4.4.3 The discussion of *still* and *yet*

The items of *still* and *yet* are discussed here together because they are similar semantically as consequence items to mark concessive relationship. According to the Lea et al. (2014: 783-915), *still* and *yet* both incorporate the explanation of “despite what has just been said”. The generally same meaning of the two items may make students confused about how the items are used in academic writing. The previous studies, however, have little discussion about them. It could be argued that the discussion of the two items here is worthy of note.

Despite the fact that the two items *still* and *yet* are explained in the same words in the dictionary, there are differences for them. The item *yet* has two parts of speech, i.e. adverb and conjunction, while *still* can only be an adverb. It means that *yet* can be used as a conjunction to connect two clauses within a sentence, but *still* cannot play that role. The feature can be shown by students’ writing in my study. For example,

Averages of 2003 figures are taken to a basis of 12 months in this report, yet it is believed that there are deviations with the true view of the Group performance. (CH3CRHLM-3018e)

In the example above, the English student uses *yet* as a conjunction to connect two clauses within a sentence. The item *still*, however, cannot be employed in this context since it is an adverb.

Another difference between the two items may be shown by the position of them in a sentence. The majority of *yet* are used in the sentence-initial position by both groups of Chinese and English students (69.2 and 84.0 % respectively), while the majority of *still* do not occur in the sentence-initial position through my research.

Finally, the pattern of co-occurrences of *still* and *yet* with other items were identified. For example, the co-occurrence of “*however, still*” is used by Chinese students, but not by English students. The co-occurrence of “*and yet*” and “*yet still*” are used by English students, but not by Chinese students. The patterns of the items show the sophisticated writing skills by each group of students because of the complex transitions they used.

In conclusion, this chapter has investigated the consequence transitions, and varied comparisons have been conducted for the use of consequences in Chinese and English student writing. A number of features of specific items are emerging, such as

- the role of contrasts in soft vs. hard disciplines
- the role of transitions in discursive vs. technical genre families
- the co-occurrences of consequence items with other transitions
- the inappropriate use of transitions as conjunctions
- the influence of first language
- the use of transition following semi-colons.

So far, two of three semantic categories of transitions (comparison and consequence) have been investigated, so the next chapter will examine the last category of addition.

## Chapter 7 The investigation of addition

### 7.1 Introduction

Addition is the third semantic category of transitions investigated in the current study. According to Hyland (2005: 50), "addition adds elements to an argument". The identification and analysis of addition items are the same as the other two categories of transitions, i.e. comparison and consequence. This chapter will demonstrate the findings of how Chinese students used addition items compared with the English students, then discussion of the use of these items will be presented.

### 7.2 General findings for additions

The use of addition items by the Chinese and English students will be compared across the corpus as whole, across disciplines and genre families. An examination of individual additional transition markers where there are significant differences follows.

#### 7.2.1 Variation in the use of additions in disciplines

Before showing the variation of additions across discipline, the overall frequency of additions in the Han CH-EN corpus is presented.

Table 7.1: Additions in the Han CH-EN corpus

	Chinese	English	P-value
Total (n)	219	153	
Mean (per 1000 words)	1.427	0.633	p=0.000

Table 7.1 shows the general difference of the frequency of additions between the Chinese and English writing. The absolute frequency of additions in the Han CH subcorpus is considerably higher than in the Han EN subcorpus (219 vs. 153). Similarly, the relative frequency of addition in the Han CH subcorpus is statistically significantly higher than in the Han EN subcorpus (1.427 vs. 0.633 per 1000 words) as the p-value is less than 0.05. In other words, the Chinese students used addition items significantly more often than their English counterparts.

Table 7.2: Additions in disciplines with more than five pairs of texts

Discipline	CH	EN	P-value
	per 1000 words		
Engineering	2.635*	0.265	0.000
Business	1.181	1.878	0.158
Food Science	1.102*	0.165	0.006
Law	0.783	0.820	0.932
Biology	0.744	0.401	0.093

\* indicates a significantly greater value ( $p < 0.05$ ).

Table 7.2 shows the relative frequencies of additions in the five disciplines with more than five texts in each subcorpora. Three disciplines have higher relative frequencies of additions in the Han CH subcorpus than in the Han EN subcorpus, i.e. Engineering, Food Science, and Biology. In contrast, two disciplines (i.e. Business, and Law) have lower relative frequencies of additions in the Han CH subcorpus than in the Han EN subcorpus. No significant differences were found in the relative frequencies of additions in three of the disciplines between the two subcorpora, i.e. Business, Law, and Biology, as all of their p-value are higher than 0.05. However, significant difference occurred in the disciplines of Engineering and Food Science ( $p < 0.05$ ). In other words, the Chinese writers used significantly more additions in Engineering and Food

Science than their English counterparts. When I closely examined additions in Engineering, it was found that three addition items occurred significantly more often in the Han CH subcorpus, i.e. *and*, *furthermore* and *in addition* (see Figure 7.1). In other words, the greater use of the three items in the Han CH subcorpus might cause the statistically significant difference in the discipline of Engineering between Chinese and English writers' texts. Addition items were not found with statistically significant differences in Food Science, but some items were found with substantial difference. For example, the items *also*, *furthermore*, and *in addition* occur in the Han CH and the Han EN with the relative frequencies of 0.494 vs. 0.061, 0.162 vs. 0.000 and 0.366 vs. 0.023 per 1000 words respectively.

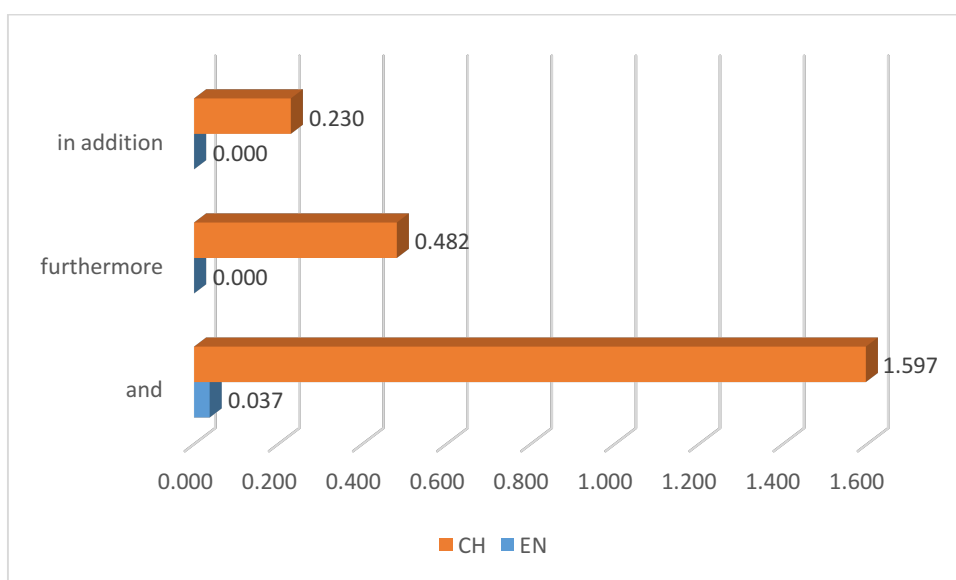


Figure 7.1: *And*, *furthermore* and *in addition* in Engineering

### 7.2.2 Variation in the use of additions in genre families

Table 7.3: Additions in genre families with more than five pairs of texts

Genre	CH	EN	P-value
	per 1000 words		
Methodology Recount	1.667	0.217	0.001
Critique	1.478	0.678	0.109
Essay	1.310	0.986	0.257
Explanation	1.092	0.658	0.639
Case Study	0.813	0.690	0.821

Table 7.3 shows the relative frequencies of additions in five genre families with more than five texts in each subcorpora. All genre families in the Han CH subcorpus have higher relative frequencies of additions than in the Han EN subcorpus. The addition items occur significantly more frequently in Methodology Recount ( $p < 0.05$ ), while there is no statistically significant difference in the genre families of Critique, Essay, Explanation, and Case Study ( $p > 0.05$ ). In other words, the Chinese students only use statistically significantly more additions than their English counterparts in Methodology Recount.

### 7.2.3 The frequencies of individual additions in the Han CH-EN corpus

In the category of addition, nine items were identified in the Han CH-EN corpus (see Figure 7.2), and the frequencies of them vary. Two items (i.e. *and*, *in addition*) occurred with statistically significant differences. In other words, the Chinese students made use of the two items statistically significantly more frequently than the English students, and there are no significant differences for the use of other addition items by the two group of students.

Addition	CH	EN	P-value
	per 1000 words		
and	0.384*	0.027	0.032
furthermore	0.340	0.257	0.343
also	0.207	0.097	0.064
in addition	0.202*	0.047	0.005
moreover	0.123	0.056	0.095
besides	0.070	0.017	0.138
additionally	0.057	0.022	0.247
again	0.041	0.085	0.180
further	0.004	0.024	0.187

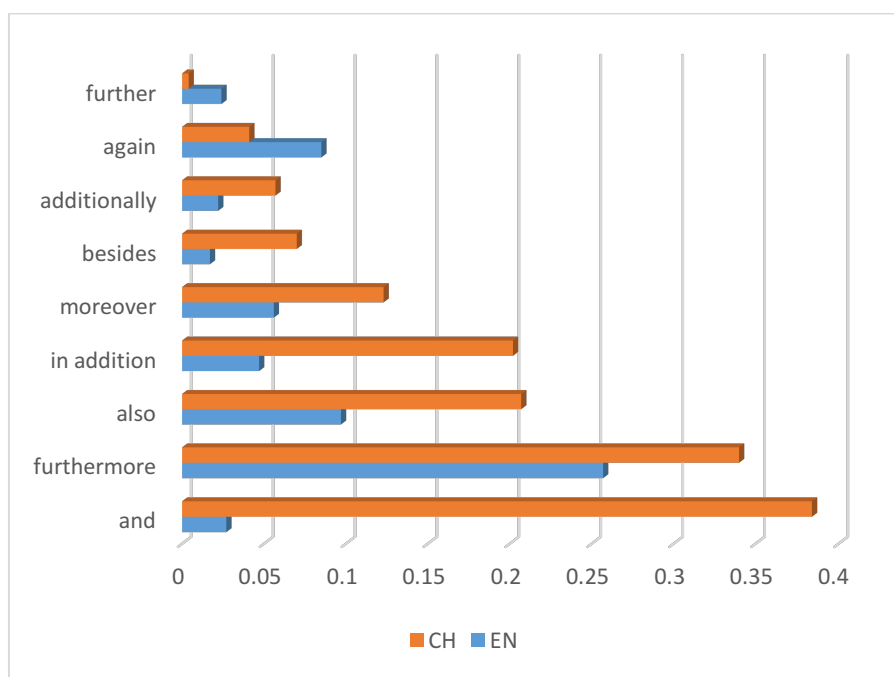


Figure 7.2: Additions in the Han CH-EN corpus

### 7.3 Findings for the use of specific addition items

Last section shows the frequencies of the category of addition and it shows the comparison between the Han CH and the Han EN subcorpora. This section investigates how specific addition items were used by the Chinese and English student writers. The use of these specific items was divided into three sections. The first and second section primarily focus on the use of items with statistically significant differences between the Chinese and English students. The last section mainly focuses on the use of items without significant differences between the two groups of students.

#### 7.3.1 The use of *and*

As shown in section 7.2.3, the Chinese students used addition *and* statistically significantly more frequently than the English students ( $p < 0.05$ ). This study only investigated *and* in sentence-initial position, because *and* in the sentence-initial position which is used to introduce an argument is confirmed to be a transition marker in the category of addition. As Hyland (2005: 50) claims, it “help readers interpret pragmatic connections between steps in an argument”. This study, however, did not investigate the instances of *and* in sentence-medial position which might be transition marker. Compared with the other transition markers, the item *and* is special as there are thousands of *and* in the Han CH-EN corpus, which is difficult to confirm if it is a transition marker or not. Therefore, this study only focused on sentence-initial *and*. For example,

Thus, it is essential to provide a wide range of cuisines for tourists to choose, they include Chinese, Thai, Japanese, Indian, Italian, Indonesian, American, French and English etc. *And* there are also various types of catering services such as bar, cafe, night club, public house, take away, wine bar and tea room. (CH1CSHLTM-3085a)

Proteins range in molecular weight from 10,000 to about 1,000,000 Daltons and can have highly complex structures. They are formed in a condensation reaction with amino acids. *And* a peptide bond is formed between the carbonyl group of one amino acid and the amino group of the other to form a polypeptide. (EN2MRFS-6084a)

In the first example above, the Chinese student used *and* in sentence-initial position to add an argument on the various types of catering services. This argument was added to the preceding argument on a wide range of cuisines, both of which showed the needs of the local and international visitors. Likewise, in the second sentence, the English student employed *and* in sentence-initial position to add an argument on the formation of a peptide bond. This argument was added to the preceding argument on the formation of proteins.

The distribution of sentence-initial *and* varied in the Han CH and the Han EN subcorpora. It occurred in the Han CH subcorpus commonly, while it occurred in the Han EN subcorpus not frequently. It was found that ten out of 32 Chinese students (31.3%) used the item *and* in sentence-initial position in their writing, while only four out of 50 English students (8%) employed the item in the same way. For the distribution of the item in texts, it occurred in 20 out of 78 Chinese students' texts (28.6%), while it only occurred in four out of 78 English students' texts (5.1%).

### **7.3.2 The use of *in addition* group**

The *in addition* group were investigated together in this section, which includes four items: *in addition*, *additionally*, *furthermore*, and *further*. They were investigated as a group because firstly this section was planned to examine a second item with statistically significant difference, i.e. *in addition*. Another reason is that *furthermore* is considered to be interchangeable with *in addition* (Swan 2005: 142). Furthermore, *additionally* and *further* appear to be close in

meaning to *in addition* and *furthermore* respectively. Therefore, these four items were put into a group to investigate together in this section.

As shown in the section 7.2.3, the Chinese students used *in addition* statistically significantly more often than their English counterparts (0.202 vs. 0.047 per 1000 words). This item *in addition* investigated in the current study, according to Lea et al. (2014: 13), was “used to introduce a new fact or argument”. For example,

*In addition*, the most important impacts will occur over the next few years as increased profile that Scotland generated takes effect and further benefits for Scotland's tourism in long term (Scottish Executive, 2005). (CH3CSHLTM-3085d)

*In addition*, growth of technology stocks in the US, the increasing demand for adult education courses and the 'free agent nation' symbolize the importance of knowledge in the economy and 'individuals are finding a wealth of new opportunities to develop and exploit their own knowledge capital' (Burton-Jones 1999: 221).

In the first example above, the item *in addition* was used by the Chinese student to add one argument that the G8 summit was beneficial for the Scotland. In fact, the author had explained two aspects before this argument with the item “firstly” and “secondly” in preceding sentences in the same paragraph. In the second example, *in addition* was used by the English student to add one argument that many facts showed the importance of knowledge in the economy. This argument was the second argument in the paragraph, which is slightly different from the use of *in addition* in the first example by the Chinese student as there was no use of markers such as “firstly” and “secondly” in the preceding sentences.

For the most evident difference of the use of *in addition*, it was found that *in addition* was more likely to occur in the last two sentences of a paragraph in the Chinese students' texts, while it was more likely to occur in the front or middle part of a paragraph in the English students' texts. In other words, the Chinese students tended to use *in addition* to introduce the final argument in a paragraph, while English students did not have the preference. For example,

*In addition*, the mechanical properties of carbon steel meet the distinct mechanical requirements in the structural applications.  
(CH3DSENG-0254i)

*In addition*, it reveals a touching bond between the researcher and the researched. (EN4CRSOC-0422c)

In the first example from the Chinese student, the item *in addition* was used to add an argument that show carbon steel has good property which was an additional reason why carbon steel was chosen to be the material of the disc. This reason introduced by *in addition* was not developed with further details, and it was the last sentence in the paragraph. Generally, *in addition* occurred in the last two sentences of a paragraph accounted for nearly half of its total occurrence (46%).

In the second example above, the English student used *in addition* to add an argument when analysing the process how the researcher in the text bridge the culture distance with the respondent. This argument introduced by *in addition* occurred in the middle of the paragraph and after the preceding argument introduced by the addition marker *furthermore*. The position of *in addition* in the front or middle of a paragraph was the most common in the English students' texts, accounting for 86% of its total occurrence. To conclude, the Chinese students preferred to use *in addition* at the end of a paragraph, while their English counterparts preferred to use it in the middle or front of a paragraph.

The use of paragraph-initial *in addition* was another evident difference between the Chinese and English students. More than a quarter of *in addition* occurred in sentence-initial position in the Chinese students' writing, while only 7% occurred in their English counterparts. For example,

*In addition*, the conditions associated with obesity is: Heart Disease, Diabetes, Cancer, Osteoarthritis, Gallstones, Lipid disorders, High blood pressure, Respiratory problems, Depression and Social discrimination. (CH1ESFS-6081k)

*In addition* it has been argued that the implementation of the Criminal Procedure and Investigations Act 1996 has further reduced the danger of ambush defences. (EN3ESLAW-0411c)

In the first example, *in addition* was used by the Chinese student in the paragraph-initial position; this was in the second paragraph of the conclusion section in the text. The preceding paragraph presented a summary on the relation between obesity and junk food. In the second paragraph, the item *in addition* was used to add an argument that obesity may cause a lot of health problems. It was normal for the use of the *in addition* in this way in Chinese students' texts, as the percentage shows. This suggests that this was the second position that the Chinese students preferred for the use of *in addition* in their academic writing. In contrast, the English students rarely used it in paragraph-initial position. In the second example, the writer used *in addition* to add the significance of the implication of the Act 1996 to ambush defences. In fact, only one *in addition* was used by the English students in paragraph-initial position.

Generally, for the position of *in addition* in a paragraph, the Chinese and English writers had different preference. The Chinese students tended to use the item *in addition* at the end of a paragraph, and the paragraph-initial position

was the second preference for them. English students tended to use *in addition* in the middle or in the front of a paragraph, and rarely used it in paragraph-initial position. However, for the position of *in addition* in a sentence, the Chinese and English writers had the same characteristics, and tended to use it in sentence-initial position.

For the co-occurrence items in the preceding or following *in addition*, it was found that some occurred inappropriately in the Chinese students' writing, but not in the English students' writing. For example,

*In addition*, the Oxfordshire county council encourage local Oxford residents to use cycle instead of using car in order to improve the environment, cut congestion, save space and avoid pollution. *Additionally*, Oxford has some of the highest rates nationally for people travelling to work by bus and cycle (Oxfordshire County Council, 2004a). (CH1CSHLTM-3085a)

In this example above, *in addition* was used by the Chinese writer to add one measure that took by the county council for the transportation. It should be an appropriate use of *in addition* to add an argument or fact in this way, but the co-occurrence *additionally* in the following sentence appeared to be used inappropriately or it did not show the sophistication of the writer, because *additionally* seems the adverb version of the item *in addition* with exact the same meaning as Lea et al. (2014: 13) indicates "used to introduce a new fact or argument". Similar inappropriate use was found by other Chinese students. For example,

*In addition*, the concept has some limitations in explaining the extent of competition state...*In addition*, the concept of Developmental State and Competition States are mutually exclusive. (CH4ESPOL-0257d)

The item *in addition* occurred twice in the example above. The first one was used to introduce the limitations, and the second one was employed to show the relation of two concepts. However, the two items of *in addition* occurred in one after another paragraph-initial position; this shows the inappropriateness or the less sophistication of the writer, although there was no problem from grammar perspective.

From the perspective of logic, the Chinese students were found to make mistake in the following example,

*Last but not least*, during the experiment, while we want to transport the dish, we can't touch it by our hands, if so, the grease on our fingers may moved onto the dish.

</p><p> *What's more*, result also depends on the time we heated it up. </p><p> *In addition*, although the amount of water in food determines its nutritive value and taste, in some cases it can be considered as an impurity. (CH1MRFS-60811)

In the example above, *in addition* was used to add one argument or fact on the water in food. This *in addition* occurred in the paragraph-initial position, while the items which had the similar function in the last two paragraphs were the items “last but not least” and “what’s more”. There might be some inappropriateness for the two items which occurred in the preceding discourse of *in addition*. In the first place, the item “last but not least” generally showed the argument or fact should be the last one. However, there was an argument followed it with the introduction of “what’s more”. From the perspective of academic writing, both “last but not least” and “what’s more” were regarded as informal language, which might be inappropriate use (Leedham 2015).

The informal collocation with the item *in addition* also occurred in other Chinese texts. For example,

*In addition*, DTI (2005:39) has drawn attention to the fact that 'the courts have interpreted this legislation as applying to any industrial action...*Further*, there is no protection against dismissal for workers who take part in unofficial industrial action. ...*What's more*, the common law does not provide a rule whereby those workers could obtain reinstatement in their employment. (CH4ESBUS-0081a)

In the example above, the item *in addition* was used to introduce one argument or fact on legislation. Following *in addition*, “further” and “what’s more” were also used to add arguments. However, the use of “what’s more” might be another informal item in Chinese students’ writing.

Generally, informal items used with *in addition* were found in the Chinese students’ writing, while no similar inappropriateness were found in their English counterparts. This suggests that the Chinese students might not be fully aware of the formality of the language which have similar function to the item *in addition*.

For the co-occurrence items with *in addition*, another characteristic of the Chinese students’ writing might be that they used the items more explicitly than the English writers. For example,

*Firstly*, the findings indicated that a net profit of £5 million by hosting the Summit was made for Scotland. *Secondly*, as the Summit is a world-class event, this would catch the attention of the international media... *In addition*, the most important impacts will occur over the next few years as increased profile that Scotland generated takes effect and further benefits for Scotland’s tourism in long term (Scottish Executive, 2005). (CH3CSHMTM-3085d)

In the example above, the item *in addition* was used to add an argument or fact on the impact of the Scotland's tourism. Before *in addition*, the items "firstly" and "secondly" were used explicitly to introduce the students' arguments. There were variations of the collocation, e.g. "firstly, in addition, next" and "moreover, in addition, finally", which were common in the Chinese students' writing. However, these co-occurrences occurred much less frequently in the English students' writing. Compared with Chinese students, English students used the co-occurrences more implicitly. For example,

*The second requirement is for the lowest possible pressure difference between the liquid and the steam...In addition, the steam must be at a higher pressure than the product, up to 1.5 bar extra, in order to give the required flow rate and good mixing characteristics, and will therefore be at a higher temperature. (EN2MRFS-6012j)*

In this example above, the item *in addition* was used by the English student to add one argument or fact on the requirement of the experiment. In the preceding sentence, the writer used "the second requirement", instead of "secondly", which showed the implicitness. It suggests that the English students might be more aware of the use of markers which co-occurred with *in addition* than their Chinese counterparts.

There might be confusion in the use of *in addition* with other four items in the category of addition (i.e. *additionally*, *further/furthermore*, *moreover*), because their meanings are very close and in some cases they seem to be interchangeable. The item *additionally* might be the adverb version of *in addition* because according to Lea et al. (2014: 13) they have the exactly same meaning: "used to introduce or add a new fact or argument". The items *further* and *furthermore* have the exactly same meaning: "in addition to what has just been stated" (Lea et al. 2014: 352), which are also similar to *in addition* semantically. According to Swan (2005: 142), the item *furthermore* is

interchangeable with *in addition*. There seems no evident difference for the meanings of these items mutually (i.e. *in addition*, *additionally*, *further* and *furthermore*); this might be difficult for student to decide which item should be used in a specific context. For example,

*In addition*, the Oxfordshire county council encourage local Oxford residents to use cycle instead of using car in order to improve the environment, cut congestion, save space and avoid pollution. *Additionally*, Oxford has some of the highest rates nationally for people travelling to work by bus and cycle (Oxfordshire County Council, 2004a). (CH1CSHLTM-3085a)

In the two sentences of the example above, *in addition* was used in the first sentence and *additionally* was used in the sentence which is immediately below. It is arguable that the writer might not be clear the difference between *in addition* and *additionally*, or the writer might not be familiar with the use of other items such as *furthermore* and *further*. This may show the writer might not be sophisticated in academic writing. As discussed at the beginning of this section, this example was from a Chinese student, which showed that there might be confusion in the use of these items with very similar meanings for the Chinese students.

Although dictionaries such as the *Oxford Learner's Dictionary of Academic English* (OLDAE) seem not to inform students the difference of the use of these items, the further investigation of the frequencies of them in the Han CH-EN corpus might be helpful for students (see Figure 7.3).

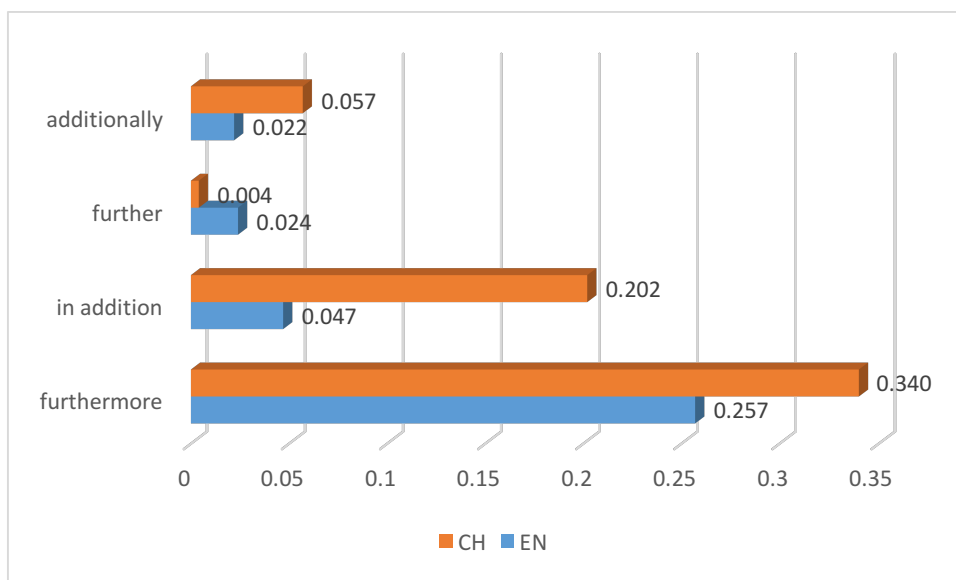


Figure 7.3: The frequencies of the four items with similar meanings in the Han CH-EN (per 1000 words)

As shown in Figure 7.3, the frequencies of these four items vary in the Chinese and English students writing. Generally, the Chinese students used substantially more of these items than the English students, except for the item *further*. Among the items with very similar meanings, the use of *furthermore* was the most frequent in the Han CH subcorpus, and followed by the use of *in addition*, *additionally* and *further*.

Between *in addition* and *additionally*, both the Chinese and the English students preferred to use *in addition*. Although the two items have the exactly same meaning, the Chinese students used *in addition* nearly four times as frequently as *additionally*, and the English students used *in addition* more than twice as frequently as *additionally*. Likewise, although *further* and *furthermore* have the exactly same meaning, the Chinese and English writers were overwhelmingly likely to use *furthermore*. Perhaps this is because *furthermore* cannot be confused with *further* or *farther* or non-transitions.

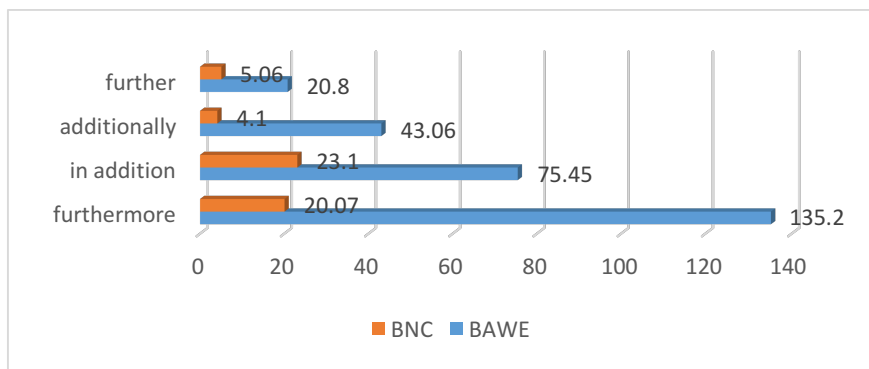


Figure 7.4: The frequencies of the four items with similar meanings in BAWE and BNC (per million words)

The differences for the frequencies of the items were generally in line with the investigation of the BAWE corpus and the BNC (written books and periodicals). As shown in Figure 7.4, the item *furthermore* was most frequently used in the BAWE corpus, while *in addition* was most frequently used in the BNC. It suggests that professional writers have different preference compared with students for the use of *in addition* and *furthermore*. Professional writers have greater use of *in addition* than *furthermore*, which is in line with Peacock (2010).

In the BAWE corpus, the frequency of the item *in addition* was almost twice higher than *additionally*, and the frequency of the item *furthermore* was around six times than *further*. In the BNC, likewise, the frequency of the item *in addition* was around five times than *additionally*, and the frequency of *furthermore* was around four times than *further*. This suggests that students and professional writers both have the preference of using *in addition* to *additionally* and have the preference of using *furthermore* to *further*. These findings are in line with Peacock (2010: 22), in which the journal article writers have greater use of *in addition* than *additionally*, and they have greater use of *furthermore* than *further*. In addition to the similarity, it is noted that students in the BAWE corpus used substantially more of these items than professional writers in the BNC. It is arguable that the differences in frequency for the use of these items might be helpful for writers to understand the general tendency for the use of them.

The collocations of these items identified through Sketch Engine might be also helpful for the understanding of their use. The items *in addition* and *furthermore* were closely investigated in the BAWE corpus and the Han CH-EN corpus, in order to find out if there are ways the two items are used differently although the meanings are similar.

*In addition* was found to have high collocation scores with the item “also” in the BAWE and Han CH-EN corpus (see Table 7.4).

Table 7.4: The collocation value of *also* with *in addition*

	Log Dice	MI
BAWE	6.971	5.340
Han CH-EN	6.760	5.648

As Table 7.4 shows, the co-occurrence of *in addition* and *also* has similar high strength of collocation in terms of Log Dice and MI with scores larger than three. The items co-occur similarly in the two subcorpora. For example,

*In addition*, research has *also* focused on the development of a vaccine that would involve the activation of macrophages and recruitment of cytotoxic T cells to help kill the bacterium-infected macrophages (3). (EN2EXBIO-0009e)

*In addition*, EMS descendants *also* have the ability to produce intestine (Figure 10). (CH3EXBIO-0434a)

In the first example from the BAWE corpus, “also” as a collocation of *in addition* was used by the English student to add another focus of the research. In the second example from the Han CH-EN corpus, similarly, “also” as a collocation of *in addition* was used by the Chinese student to introduce another productive ability of the EMS descendants.

As for *furthermore*, the items “argued” and “suggested” were found to have high collocation values with it (searching word range from 0-15) in the BAWE and Han CH-EN corpora (see Table 7.5).

Table 7.5: The collocation of *furthermore* in the BAWE and Han CH-EN corpora

	corpus	Log Dice	MI
argued	BAWE	8.117	6.765
	Han CH-EN	9.771	8.138
suggested	BAWE	7.306	6.023
	Han CH-EN	8.920	7.463

As Table 7.5 shows, in terms of Log Dice and MI, the items of “argued” and “suggested” had similar high collocation values with the item *furthermore*. For the use of the collocation of *furthermore* with “argued”, it occurred similarly in the two corpora. For example,

*Furthermore*, it has been *argued* that it was an "idea" that caused the Depression. (EN1ESCAS-0302f)

*Furthermore*, it is *argued* that knowledge workers, rather than being the privileged elite in the workplace, are either 'embedded in the corporate bureaucracy' with 'the fruits of their knowledge captured in silicon and sold by the corporation as a commodity' (Coher and Zysman 1986:260) or engaged in precarious, insecure forms of employment (Warhurst and Thompson 1998). (EN4ESBUS-0073a)

In the first example from the BAWE corpus, “argued” as a collocation of *furthermore* was used by the English writer to add an argument about the Depression. In the second example from the Han CH-EN corpus, “argued” as a

collocation of *furthermore* was also used to add an argument about the situation of knowledge workers.

For the collocation of *furthermore* with “suggested”, it also occurred similarly in the two corpora. For example,

*Furthermore*, it was *suggested* that more emphasis should have been placed on how the learners felt before and after completing the breathing exercise to aid understanding and retention. (EN2CRHE-3119d)

*Furthermore*, it has also been *suggested* that 'the strict approach towards equitable compensation and the differentiation that once existed between it and compensation in tort, has gradually been eroded'. (CH3ESLAW-0410a)

In the first example from the BAWE corpus, “suggested” as a collocation of *furthermore* was used by the English student to add an argument about the emphasis on how the learner felt. In the second example from the Han CH-EN corpus, the “suggested” was used by the Chinese writer to add an argument about the development of the strict approach.

To conclude, this suggests what the item *in addition* introduced was generally one factor or feature of a subject (e.g. with “also”), while what the item *furthermore* introduced was generally argumentative (e.g. with “argued”). It is arguable that the collocations might be another characteristic of the two items, which would be helpful for students to distinguish them in academic writing.

#### 7.3.2.1 the use of additionally

Although there is no significant difference between the frequency of *additionally* in the Han CH and Han EN subcorpus (see Section 7.2.3), there is substantial

difference as Figure 7.3 shows (0.057 vs. 0.022 per 1000 words), which seems to be worthy of note. As discussed in the last section, the item *additionally* is “used to introduce a new fact or argument” (Lea et al. 2014: 13), which has the exact same explanation with *in addition*. For example,

*Additionally*, information management, providing full and accurate records and audit trails of actions, can assist risk management and sustain cooperate governance to minimize the level of information risk and corporate risk, through improved compliance to laws and governmental regulations concerning the operations of business. (CH4ESENG-0343a)

*Additionally*, an employee can feel they are being watched over and scrutinized continually leading to an increase in stress. (EN1ESBUS-0212c)

The examples above showed the typical use of *additionally* in the Han CH-EN corpus, in which *additionally* was used to add an argument. For the first example, the Chinese student used *additionally* was to add an argument on the role of information management. In the second example, the English student used *additionally* to add one fact that increased the stress of an employee. The meaning of *additionally* is the same with *in addition* as discussed above, and the position of it in a paragraph is also similar to the position of *in addition* in the Chinese students’ writing, but not similar to the position of *in addition* in the English students’ texts. For example,

*Additionally*, biases of the model assumptions were discussed at metapopulation level. (CH2MRBIO-0036c)

*Additionally*, a Monte Carlo simulation will consider all possible variable combinations, NPV outcomes and the associated

probability distributions for further analysis. (EN3CSBUS-0200e)

The first example above was from a Chinese student, and the item *additionally* was used as the last sentence of a paragraph to add one argument on the model assumptions. This position of the use of *additionally* was common in the Chinese students' texts (45%); this was very similar to the use of *in addition* because 46% of the instances of *in addition* occurred at the end of a paragraph. In the second example above, *additionally* was used by the English student in the last sentence of a paragraph to add one argument on the Monte Carlo simulation. This position of the use of *additionally* was common in the English students' writing, which was not similar to the use of *in addition* in the English students' texts because it was not frequently used at the end of a paragraph in the English students' writing. This suggests that *additionally* was used frequently at the end of paragraph by both the Chinese and the English students.

#### 7.3.2.2 The use of *furthermore*

As discussed in the section 7.3.2, the item *furthermore* means "in addition to what has just been stated" (Lea et al. 2014: 352); this is a similar meaning to the item *in addition*, and it might be interchangeable with *in addition* (Swan 2005: 142). It was assumed that the similar items might make students confused in their writing, and it was worthwhile to investigate closely the use of the item *furthermore* in the Han CH-EN corpus. In the following discussion, the characteristics of the item *furthermore* will be presented in terms of the position in a sentence, the punctuation used with it, the position in a paragraph, and the parallel markers used beyond sentences.

As for the position in a sentence, the item *furthermore* was used as follows,

*Furthermore*, judges especially Lord Steyn and other commentators have expressed their disagreement with the reference to such materials. (CH1CRLAW-0132a)

*Furthermore*, Monetarists maintain that there is not one single Phillips curve, but that there is an "infinite number of curves; one for each possible level of inflation." (EN2ESECO-0399b)

In the first example, *furthermore* was used by the Chinese student to add one argument about the attitude of Lord Steyn and other commentators. In the second example, likewise, *furthermore* was used by the English student to introduce the claim from Monetarists. For both examples, *furthermore* was used in the sentence-initial position, which was the most common position of it in a sentence (88% and 75% in the Han CH and the Han EN subcorpora respectively). This suggests that the first characteristic for the use of *furthermore* is that the Chinese and English students tended to use it in the sentence-initial position.

For the sentence-initial *furthermore*, there might be a comma after it or not. The use of *furthermore* with a comma has been presented in the above examples, then the following two examples show the use of *furthermore* without comma after it. For example,

*Furthermore* we will then construct a reasonable mathematical model to simulate the corresponding network. (CH4PRBIO-0162d)

*Furthermore* behavioral scientists have questioned whether juries are fundamentally capable of distinguishing between truthful and lying witnesses and that generally "people are poor at judging credibility from demeanor". (EN3ESLAW-0411a)

In the first example above, *furthermore* was used by the Chinese student to add one step of the research in the introduction section, and there was no comma after the item *furthermore*. In the second example, *furthermore* was used by the English student to add the attitude of the behavioral scientists. The lack of punctuation after the item in sentence-initial position, appeared rarely in the Han CH subcorpus, but it was common in the Han EN subcorpus (2% vs. 66%). This suggests that the Chinese students might be fully aware of the use of punctuation after the transition marker *furthermore*, but it seemed acceptable for the English students to omit the comma after the transition marker. This common lack of the comma after *furthermore* in the Han EN subcorpus might also show the development of the English language, since this is different from the examples in the Lea et al. (2014: 352) in which there is a comma after *furthermore*. In addition, the lack of comma in the English students' writing might show the less formality of their writing.

In addition to the use of *furthermore* in sentence-initial position, a smaller percentage of it also occurred in sentence-medial position (12% and 25% in the Han CH and the Han EN subcorpus respectively). However, there were different characteristics of the use of sentence-medial *furthermore* in the two subcorpora. For example,

Therefore, X-bar theory is a relatively successful theory especially in descriptive adequacy although it may fail to illustrate the scope ambiguity; *furthermore*, X-bar theory has explained a little in the final level but there is still a distance from the ideal purpose. (CH4CRLIN-6058b)

The recent completion of a face transplant in France (Simpson and Batchelor, 2006), *furthermore*, sparked media debates as to how far this manipulation could potentially go, with the opportunity to one day buy a brand new face being cited by

the media as a realistic and looming possibility. (EN4ESSOC-0405b)

They argue that this group is more 'explicitly sexualized, racialized and class based' than the former *and furthermore* that it 'concentrates on low-wage, low-skilled service provided mostly by females'. (EN4ESSOC-0422b)

In the first example, *furthermore* was used by the Chinese student to add one function of the X-bar theory in the text. The use of *furthermore* following a semicolon within a sentence was common in the Han CH subcorpus, but it did not occur in the Han EN subcorpus. In the second example, *furthermore* was used by the English student to add one effect of the completion of the face transplant in France discussed in the text. In the third example, *furthermore* following an “and” was used by the English student to add one argument about the feature of the group discussed in the text. The use of “and” before the item *furthermore* seemed to make the expression more complex as Biber et al (1999: 80) point out “linking adverbials may be preceded by coordinators”. This suggests that the Chinese and English students had different preferences for the use of sentence-medial *furthermore*. Chinese students preferred to use *furthermore* following a semicolon within a sentence, while their English counterparts tended to use patterns of “and furthermore” and “, furthermore,” within a sentence.

In addition to the characteristics within a sentence, the position of *furthermore* in a paragraph was also found to be different between the Chinese and English students. More than half of the instances of *furthermore* (58%) occurred in the last two sentences of a paragraph in the Chinese students’ writing, while only 35% occurred at the position in their English counterparts’ writing. It suggests that the Chinese students tend to use *furthermore* at the end of a paragraph, while the English students preferred to use it in the middle or at the beginning of a paragraph. For example,

Again using Kuznet's 6 characteristics of modern economic growth, we can see that Britain did make the transition into modern economic growth, mainly through the Industrial Revolution. Like the Dutch, it had a rise in population as well as per capita income. However, unlike the Dutch, the British were able to sustain this growth, thus breaking out of the Malthusian Trap. **Furthermore**, Britain's growth was based on industrial progress, and not just specialization as in the Dutch case. (CH1ESECO-0071a)

There are a number of implications of the extrinsic motivation approach on this firm. From a technical point of view this approach sounds attractive. It advocates little change from the current operational working practices other than introducing management by objectives and reinforcement methods. However, from a social point of view this is precisely the problem. There is no change to the repetitive nature of the work or the autocratic supervision and it is unlikely to lead to the introduction of the socio-technical organisational culture. Trust is unlikely to increase as a result of employing extrinsic motivation techniques, and so therefore from a social point of view extrinsic motivation is unlikely to address the root of the issues. **Furthermore**, critics of behaviour modification and reinforcement techniques have suggested the approach itself is flawed. Cognitive psychologists argue that people are not machines - they think before they act and therefore BM is fundamentally about pure motivation rather than reinforcement. More general criticisms are that it is often difficult to identify which extrinsic rewards are the motivators, and that rewards cannot always be controlled by line managers (as in defined benefits structures such as local

authorities). Further, demands of the social group at work may conflict and limit the use of BM. (EN4CSBUS-0289b)

In the first example, the *furthermore* was used by the Chinese student to introduce an argument about the base of British economic growth compared with Dutch. The argument simply occurred at the end of a paragraph without further illustration or explanation. However, the *furthermore* in the second example was not used like this. The English student employed the *furthermore* in the middle of a paragraph to add one negative attitude on the approach in the text. In contrast to the first example, there was further argumentation in the following sentence for the viewpoint; this was shown as “cognitive psychologists argue that”. These were features of the use of *furthermore* in the Chinese and English students’ writing, which was similar to the use of the item *in addition* in the writing of the Chinese and English students (see Section 7.3.2).

Beyond the sentence with the item *furthermore*, the discourse markers preceding or following *furthermore* which were used to order, sequence or add arguments were investigated in the study. 24% sentences with *furthermore* were found to have this type of discourse markers preceding or following *furthermore* in the Chinese students’ writing, which is three times more frequent than in the English writers’ texts (8%). For example,

*Moreover*, job performance depends on individual perception, individual abilities and traits together with role perceptions.  
*Furthermore*, differential performance determines rewards and produces variation in employee's expression of job satisfaction (Huczynski and Buchanan 2001). (CH4ESBUS-0264a)

*Firstly*, cessation of direct links with PCF, during the CGT's forty-sixth congress in February 1999, symbolizes a shift in strategy and with a severing of the 'umbilical cord' linking the confederation to the PCF permits the union to pursue its

objectives with greater autonomy. *Furthermore*, the CGT rejected PCF calls for joint mobilization in 1999, presumably indicating a shift in trade union ideology away from wider political objectives to pursue more narrow objectives in industrial the industrial sphere. (EN4ESBUS-0073c)

In the first example above, *furthermore* was used by the Chinese student to introduce an argument about the performance discussed in the text. In fact, there was a preceding argument which was explicitly introduced by *moreover*. In the second example, *furthermore* was used by the English student to add one more “evidence to suggest divisions have been overcome” as shown in the text. Before this evidence introduced by *furthermore*, there was one introduced explicitly by *firstly*. The two examples showed that the use of *furthermore* might co-occur with other discourse markers beyond the sentence; this occurred more frequently in the Chinese students’ writing than their English counterparts.

When I examined closely how this type of discourse marker co-occurred with *furthermore*, it was found that some inappropriateness or informal discourse markers occurred in the academic writing of both the Chinese and the English students. For example,

*What's more*, the eating habit of adolescents changed a lot while the high contain of sugar or high oil turns more popular and it will lead to future health care problems...  
*Furthermore*, lack of physical activity contributes to obesity.  
(CH1ESFS-6081k)

*Further*, as an approximation the theory seems sound as commodities will tend to fluctuate around a certain price level...

*Furthermore* Baumol (1991: 53) suggests that 'a subsidiary purpose of the transformation calculation was to determine the

nature of ...deviations' and that the importance of the labor theory of value was to explain 'the typical deviations of prices from values at each stage...in terms of the particular set of relations of subordination or co-operation specific to that stage' (Meek 1973: 290). (EN4ESBUS-0073d)

In the first example, *furthermore* was used to introduce an argument about the relationship between obesity and lack of activity. The preceding argument was on the relationship between obesity and the eating habit, and it was introduced by “what’s more”, which is an informal discourse marker. In the second example, the *furthermore* was used to add an argument from Baumol, but the preceding argument was introduced by the item *further* which has the same meaning as *furthermore* as Lea et al. (2014: 352) shows, which might show the English student’s unsophistication in using transition markers.

#### 7.3.2.3 The use of *further*

The item *further* is slightly different from many other items in the category of addition, because the word *further* can be an adjective and adverb. The adjective *further* is not a transition marker, so it was excluded in the current research. Only the adverb *further* was investigated as it is a transition marker.

For the transition marker *further*, one of the most evident characteristics might be that it has the same meaning as *furthermore*, but their frequency in the Han CH-EN corpus was substantially different. Sharing the same sense with *furthermore*, the term *further* was described as “in addition to what has just been stated” (Lea et al. 2014: 352). For example,

*Further*, there is no protection against dismissal for workers who take part in unofficial industrial action. (CH4ESBUS-0081a)

*Further*, it is likely that the Tesco creditor days is simply shrewd management of cash. (EN4CSBUS-0289e)

In the first example above, *further* was used by the Chinese writer to add one argument on the protection for the workers. In the second example, *further* was used by the English student to add one argument about the Tesco creditor days and the management of cash. As the two examples showed, *further* has the same meaning and function as *furthermore*. However, both the Chinese and the English students employed it substantially less frequently than *furthermore*, occurring once in the Han CH and five times in the Han EN subcorpus. The reason for this might be that the students had not been taught to use it to add an argument in the writing, or they might not be familiar with the use of *further* as an adverb to add an argument as *furthermore* because it was generally used as an adjective to modify a noun in a sentence.

Although the number of the transition marker *further* was small in each subcorpus, the characteristics of the discourse markers used with *further* in the context were still found. For example,

*Further*, there is no protection against dismissal for workers who take part in unofficial industrial action. An employee who is...

*What's more*, the common law does not provide a rule whereby those workers could obtain reinstatement in their employment. (CH4ESBUS-0081a)

*Furthermore*, critics of behavior modification and reinforcement techniques have suggested the approach itself is flawed...*Further*, demands of the social group at work may conflict and limit the use of BM. (EN4CSBUS-0289b)

The *further* in the first example, as discussed above, was the only one that occurred in the Chinese students' texts. It was placed at the paragraph-initial position. The discourse marker occurred in the next paragraph-initial position was "what's more", which seemed an informal marker in academic writing. For the *further* in the second example, it was used by the English student to add an argument on the relationship between the demands of social group and the use of BM discussed in the text. The preceding argument, however, was introduced by *furthermore*, which might show the English student's unsophistication in using transition markers as the two items have the same sense as the Lea et al. (2014: 352) shows.

### 7.3.3 The use of other additions

This section focuses on the rest of items without statistically significant differences between the Chinese and English student students, i.e. *moreover*, *also*, *besides* and *again*. Although there were no significant differences for the frequencies of these items between the two groups of students' writing, characteristics of each item were found when I examined closely. This section presents how these items were used by the Chinese and English students and explanations for the characteristics are provided.

#### 7.3.3.1 The use of *moreover*

Although there was no significant difference for the frequency of the item *moreover* between the Han CH and the Han EN subcorpora, evident characteristics of the use of the item were found out in the Han CH-EN corpus. Firstly, a relatively small number of English students used *moreover*, while it was commonly used by the Chinese students. It was found that *moreover* occurred in four out of 50 English students' texts, accounting for 8.0% of the number of students, while 12 out of 32 Chinese students (accounting for 37.5%) used *moreover* in their writing. For the distribution of *moreover* in the texts, *moreover* occurred in 7 out of 78 English students' texts, accounting for 8.9% of

the texts. In comparison, it occurred in more than twice the number of Chinese students' texts (16 out of 78).

The second characteristic for the item *moreover* was that it occurred considerably frequently in the middle or at the beginning of a paragraph. It was found that around 60% of the instances of *moreover* occurred in the middle or beginning of a paragraph in both Han CH and Han EN subcorpora. For example,

*Moreover*, it is very common for parties of a commercial contract to stipulate for neutral law and neutral jurisdiction in order to avoid the application of the law of the state in any dispute. (CH3ESLAW-0410e)

*Moreover*, the propping up of the regional economy, designed to support the growth of Japanese commerce, was symptomatic of the dispersion of Japanese corporations across East Asia. (EN4ESPOL-0255d)

In the first example above, *moreover* occurred in the middle of a paragraph, and the Chinese student used it to add an argument on how parties of a commercial contract avoid dispute. In the second example, *moreover* occurred in the middle of a paragraph, and the English writer used it to add an argument on the regional economy.

#### 7.3.3.2 The use of *also*

The item *also* was another transition marker in the category of addition. There was no significant difference for the frequency of *also* between the Han CH and the Han EN subcorpus, but substantial difference and the characteristics of the use of the item were found. The item *also* occurred twice more frequently in the Han CH subcorpus than in the Han EN subcorpus (0.207 vs. 0.097 per 1000

words). This suggests the Chinese students were more likely to use it than their English counterparts. In spite of the frequency difference, the basic usage of *also* in their writing is similar in the two subcorpora. According to Lea et al. (2014: 28), *also* means “in addition”. For example,

*Also*, the agricultural sector was very specialized in producing meat, milk, butter and cheese, while grain was largely imported, resulting in high labor productivity in agriculture.  
(CH1ESECO-0071a)

*Also*, as Jerry Brady says, there is less concern for marketability, and more concern for quality of code.  
(EN3ESCYB-6101c)

In the first example, *also* was used by the Chinese student to add an argument about the state of the agricultural sector. Likewise, in the second example, *also* was employed by the English student to introduce an argument from Jerry Brady on the concern for marketability and quality of code. The two examples show the typical use of the item *also* with the function of adding an argument. Although it means “in addition” as Lea et al. (2014: 28) explains, it had different collocation when I examined it closely in the Han CH-EN corpus. It was found that *also* had a high level of collocation with the items “there” and “if” in the Han CH-EN corpus, and this finding was in line with that in the BAWE corpus (see Table 7.6).

Table 7.6: The collocation of *also* in the BAWE and Han CH-EN corpora

	corpus	Log Dice	MI
there	BAWE	7.544	5.537
	Han CH-EN	7.794	6.431
if	BAWE	7.401	5.454
	Han CH-EN	8.252	6.965

As 7.3.3.2-1 shows, the items of “there” and “if” had similar high collocation values with the item *also* in terms of Log Dice and MI. For the use of the collocation of *also* with “there”, it occurred similarly in the two corpora. For example,

*Also, there* is the hope that in the future, discourse analysis will continue to develop further and offer considerable more contributions to the various aspects of psychology.  
(EN2ESPSY-0020c)

*Also, there* should be a shift from small personal enterprises to large firms. (CH1ESECO-0071a)

In the first example from the BAWE corpus, “there (be)” as a collocation of *also* was used to add an argument about the contribution of discourse analysis to psychology. In the second example from the Han CH-EN corpus, “there (be)” as a collocation of the *also* to introduce a shift on the form of enterprises. This suggests that *also* tends to be employed to add an argument with the structure “there (be)”; this might be a characteristic of its use. For the collocation of *also* with “if”, it also occurred similarly in the two corpora. For example,

*Also, if* any process variables are changed, the properties of the final product may change, but changing another variable in the process can compensate for this. (EN1MRENG-0028b)

*Also if* the staff are rewarded for good work, this will motivate them to do a good job and provide good customer service, which will be reflected on the customers. (EN3CSHMTM-3040c)

In the first example from the BAWE corpus, “if (clause)” as a collocation of *also* was used to add a condition on the changing of process variables. Similarly, in the second example from the BAWE corpus, “if (clause)” as a collocation of *also* was used to add a condition on whether the staff are rewarded for good work discussed. This suggests that *also* tended to be used to add an argument with “if (clause)”; this might be another characteristic of its use.

#### 7.3.3.3 The use of *besides*

The item *besides* was one of transition markers in the category of addition. Although there was no significant difference for the frequency of *besides* between the Han CH and the Han EN, there was still substantial difference between the subcorpora. The item *besides* occurred around four times more frequently in the Han CH subcorpus than in the Han EN subcorpus (0.070 vs. 0.017 per 1000 words). For the distribution of *besides*, it occurred in 18.8% (six out of 32) of the Chinese students, while it only occurred in one English student’s text. It suggests that the Chinese students were considerably more likely to use it than their English counterparts. In spite of the frequency difference, the typical usage of *besides* in the Chinese and English students’ writing was similar. According to Lea et al. (2014: 73), *besides* “(rather informal) is used for introducing an extra idea”. For example,

*Besides*, the absence of secondary action may have a negative effect on primary industrial action. (CH4ESBUS-0081a)

*Besides*, if measures are used in an attempt to reflect union influence they should incorporate the current level of union organization. (EN4ESBUS-0073b)

In the first example, the *besides* was used by the Chinese student to add an argument about the “absence of secondary action”. In the second example, the

*besides* was used to introduce an argument with an *if* clause about how to take measures. These two examples showed how the students used *besides* to add an argument, but the use of *besides* seemed inappropriate, because it was a “rather informal” expression as described above. According to Lea et al. (2014: 73), “the use of *besides* is best avoided in more formal academic writing” and the writers are advised to “use *in addition*, *furthermore* or *moreover* instead”.

#### 7.3.3.4 The use of *again*

In the category of addition, *again* was one the two items (the other one was *further*) which occurred more often in the Han EN subcorpus than in the Han CH subcorpus. Although there was no significant difference for the frequency of *again* between the two corpora, it occurred around twice as frequently in the Han EN subcorpus as in the Han CH subcorpus (0.085 vs. 0.041 per 1000 words). For the distribution of the item *again*, it occurred in the writing of around a quarter (12 out of 50) of the English students, while it only occurred in the writing of 15.6% (five out of 32) of the Chinese students. It suggests that the English students were more likely to use *again* as a transition marker in their writing than their Chinese counterparts. In spite of the frequency difference, the typical usage of *again* in the English and the Chinese students’ writing was similar. According to Lea et al. (2014: 21), it was “used to show that a comment or fact is connected with what you have just said”. For example,

*Again*, however, this change is absolutely necessary in order to address the problems of low motivation, absenteeism and low trust. (EN4CSBUS-0289b)

*Again* using Kuznet 's 6 characteristics of modern economic growth, we can see that Britain did make the transition into modern economic growth, mainly through the Industrial Revolution. (CH1ESECO-0071a)

In the first example, the English writer used *again* to add an argument on the absolute necessity of the change. In the second example, the Chinese student used *again* to show the characteristics of Britain's modern economic growth. As the two examples above show, *again* as transition marker to add an argument usually occur in sentence-initial position.

The item *again* also occurred in the medial position of a sentence in both the Han CH and the Han EN subcorpora. For example,

Finally, and *again* only when ready, the learner produces short phrases until they are at the stage to benefit from real world input (Krashen 1985). (EN4CRLIN-6009a)

However, *again*, this must be that the diagram to the left of X 0 be ignored. (CH3CRECO-0076a)

In the first example, *again* with the item *and* occurring in the sentence-medial position was used by the English students to add an argument on how the learner produced short phrases. In the second example, *again* occurring in the sentence-medial position was employed by the Chinese writer to add an argument on the diagram. Although *again* occurred in sentence-medial position, it occurred before the main clause and followed other discourse markers (e.g. “and” and “however”), otherwise it might be an adverb to modify a verb, which would not be a transition marker.

## 7.4 Discussion of addition

Based on the findings of the category of addition, the features of its use are presented in this section, showing how they vary across disciplines and genres, as well as the specific items. The features are discussed firstly for the overall frequency of the addition items. The second and third sub-sections focus on specific items with significant difference and without significant difference.

#### 7.4.1 Discussion of addition across disciplines and genres

The general feature for addition items is that the Chinese students used statistically significantly more addition items than their English counterparts ( $p < 0.05$ ). The use of the addition items varies across disciplines and genres.

Table 7.7: Additions across disciplines

Discipline	CH	EN	P-value
	per 1000 words		
Engineering	2.635*	0.265	0.000
Business	1.181	1.878	0.158
Food Science	1.102*	0.165	0.006
Law	0.783	0.820	0.932
Biology	0.744	0.401	0.093

There seems no consistency for the use of addition items by both the Chinese and the English students (see Table 7.7). The Chinese students used the overall addition items statistically significantly more than the English students ( $p < 0.05$ ), but the significant difference only occurs in Engineering and Food Science. Furthermore, in the English students' texts, the use of addition occurred more in non-science disciplines of Business and Law than in science disciplines of Engineering, Food Science, and Biology. The finding is in line with Peacock (2010: 22), which also reveals that non-science disciplines generally contain greater use of additions than in science disciplines (3.674 vs. 2.601 per 1000 words).

Table 7.8: Additions across genre families

	CH	EN	
Genre	per 1000 words		P-value
Methodology			
Recount	1.667*	0.217	0.001
Critique	1.478	0.678	0.109
Essay	1.310	0.986	0.257
Explanation	1.092	0.658	0.639
Case Study	0.813	0.690	0.821

In terms of genre family, the feature of the use addition is not striking. The use of addition items occurs generally frequently in the discursive genres (i.e. Critique and Essay) for both the Chinese and the English students (see Table 7.8). Other non-discursive genres, however, may have greater use of addition than in the two discursive genres (e.g. Methodology Recount in Chinese student writing, and Case Study in English student writing). The findings in terms of genres are not in line with Cao and Hu (2014), in which the non-discursive quantitative writing contains more additions than the discursive qualitative writing (3.930 vs. 3.440 per 1000 words). The inconsistency may be caused by the fact that my study examined students' writing, while Cao and Hu investigated journal articles.

#### 7.4.2 Discussion of specific addition items

The section focuses on the characteristics of specific addition items in the Chinese and English students' writing. For specific addition markers, my study investigates nine items. This section firstly looks at the general characteristics of addition items. Then the addition items with statistically significant difference between the Chinese and English students' writing are considered. Finally, I focus on the features of items without significant difference.

While some studies have generally investigated addition items (see Biber et al 1999; Peacock 2010), few of them have investigated the items in detail and made comparisons between Chinese and English students' writing. In my research, the addition items were examined in detail and some striking features of the items were found. Generally, Chinese students use statistically significant more addition items than their English counterparts (3.016 vs. 1.821 per 1000 words). For specific items in the addition category, significant difference does not occur in all nine items, but only in two items. The Chinese students only used *in addition* and *and* significantly more often.

#### 7.4.2.1 Specific addition items with significant difference

The item *in addition* was used significantly more frequently by than Chinese students than the English students (0.202 vs. 0.047 per 1000 words). The previous studies investigated this item, but used different methodologies. For example, Chen (2006) investigated this item, but the researcher showed the frequency with per 1000 sentence, instead of per 1000 words. Lei (2012) also investigated this item, but he investigated *in addition* and *in addition to* together, which is different from the investigation of *in addition* in my research. Biber et al (1999) investigated this item, but the genre of the texts investigated was professional academic prose (0.100 per 1000 words), rather than the students' texts. Compared with Biber et al.'s findings, my research suggests that the Chinese students used *in addition* more often than professional writers, but the English students used fewer than professional writers.

The item *and* is the other one which is used significantly more frequently by the Chinese students than English students (0.348 vs. 0.027 per 1000 words), and the findings suggest that the Chinese students' writing shows more informal features. The item *and* investigated in my research were those occurred in sentence-initial position to add an argument; this shows the informal feature. The informal feature can be explained by the further investigation in the BNC. It was found that sentence-initial *and* occurred rarely in the academic texts in the

BNC corpus, and the vast majority of the instances of sentence-initial *and* (71%) occurred only in the genre of fiction. For example,

Mr. Mendez was probably already mad because I was talking up, but he still looked patient. He said, "*And* who would drive it?" "I could do it," I said. (BNC DOC id: J2G)

In the example above, the sentence-initial *and* occurs in a conversation of a fiction, and shows the informal feature.

The informal feature in the Chinese students' writing is also shown in the items that co-occur with the item *in addition*. It was found that *in addition* is used with items like *last but not least* and *what's more* in Chinese but not English students' writing. For example,

*Last but not least*, during the experiment, while we want to transport the dish, we can't touch it by our hands, if so, the grease on our fingers may moved onto the dish.

*What's more*, result also depends on the time we heated it up.

*In addition*, although the amount of water in food determines its nutritive value and taste, in some cases it can be considered as an impurity. (CH1MRFS-60811)

In the example above, the item *in addition* introduced arguments with the informal items of *last but not least* and *what's more*. The informal items of *last but not least* and *what's more* are also identified by previous studies, e.g. Lee and Chen (2009) and Leedham (2015). This suggests that the Chinese students might not have full awareness of the formality of the language which has a similar function to the item *in addition*.

Apart from the feature of the informal items co-occurring with *in addition*, the item *in addition* occurred with other items explicitly to introduce arguments in

the Chinese students' writing, but not in the English students' writing (see the example in Section 7.3.2). The pattern of "*firstly, in addition, next*" occurred explicitly in the Chinese student's writing. Similar patterns like "*moreover, in addition, finally*" occurred commonly in the Chinese students' writing. The pattern, however, occurred implicitly in the English students' writing (see the example in Section 7.3.2).

The English students introduced the argument implicitly with "the second requirement", rather than explicit item "secondly". The difference of the feature between the Chinese and English students' writing may be caused by the different English writing courses and textbooks, which can be shown by the fact that the discourse markers are found to be listed explicitly in the Chinese writing reference books (Leedham 2015: 85).

The final feature of *in addition* is that the Chinese students tended to use *in addition* to introduce the final argument in a paragraph, while the English students preferred to use it in the middle or front of a paragraph. The reason might be that, the equivalent of *in addition* is normally translated with the word "*此外 cǐ wài*" in Chinese. While the word "*此外 cǐ wài*" incorporates the meaning of "adding another point", the word also implicitly incorporates the meaning of "excluding or apart from other points". Therefore, the Chinese students had the preference of the use of *in addition* to introduce the final argument in a paragraph might be influenced by their first language.

#### 7.4.2.2 Specific addition items without significant difference

Two main features were found in the addition items without significant difference between Chinese and English students. Firstly, there are patterns of co-occurrence of addition items with other discourse markers. It was found that for the items of *furthermore* and *again* co-occur with the item *and* (i.e. "*and furthermore*" and "*and again*") to add an argument in the English students' texts. In the Chinese students' texts, the co-occurrence of "*however, again*" is also

used to add another argument with a combination of contrast and addition semantically. Similar findings seem not to have been shown in previous studies. For example, studies, such as Peacock (2012), Lee and Chen (2009), and Leedham (2015), involved the examination of the item *furthermore*, but the co-occurrences were not revealed.

Secondly, the informal feature was also found in the addition items. For example, the item *besides* was used substantially more frequently by the Chinese students than their English counterparts. The item was not “used by native speakers to add an important new point or argument” and it “has a colloquial flavor, and is thus used more often in speech” (Lee and Chen 2009: 288). Thus, both groups of students have problems using this item, but the Chinese students’ problem is more striking. Lee and Chen also provide the reason, that is, the equivalent of *beside* is “此外 cǐ wài / 况且 kuàng qiě”, which can also be translated as “*in addition; moreover*” in English-Chinese dictionary. Therefore, the striking informal feature of using *besides* by Chinese students might be related to the influence of their first language and the using of English-Chinese dictionary.

In addition to the features of these items themselves, the subtle differences for some items which are reported changeable in previous studies were identified in my research. There might be confusion for the Chinese and English student writers in the use of *in addition* with other four items, i.e. *additionally*, *further* / *furthermore*, *moreover*, since their meanings are quite close and in some cases they appear to be interchangeable. The distinctions between these items were investigated through the comparison of their frequencies in larger corpora like the whole BAWE corpus, the BNC. In addition, the collocations of these items were investigated, which might show how these items were used differently (see Section 7.3.2).

In conclusion, this chapter has examined the addition transitions in the Han CH-EN corpus. The features of the use of addition items in the writing of Chinese

and English student writers have been presented in detail with examples. A number of characteristics of specific items are emerging, such as

- the role of addition items in soft vs. hard disciplines
- the role of addition items in discursive vs. technical genre families
- the informal use of the addition items
- the co-occurrences of addition items with other transitions
- the influence of first language.

This chapter has investigated the final semantic category of transitions. In other words, the findings and discussions of the three semantic categories of transitions (i.e. comparison, consequence, and addition) have been presented in these three chapters (i.e. Chapters 5, 6, and 7), so the next chapter will bring these findings together and conclude the study.

## Chapter 8 Conclusion and Implications

### 8.1 The research Context

Good academic writing greatly affects students' university success (see Douglas 2010; Leedham 2015; Lillis and Scott 2007), and it is at least partially dependent on the use of appropriate metadiscourse devices (Hyland 2005). Whilst the concept of metadiscourse has been developed considerably and there are different classifications for the items (see Ädel 2010; Crismore et al. 1993; Dahl 2004; Hyland 2005 2010; Vande Kopple 1985), some theories have become widely accepted, e.g. Hyland (2005). In my research, I adopted Hyland's (2005) approach because of his clear definition of term "metadiscourse" and his sophisticated classification system. While there have been many studies of "logical connectives" (Crewe 1990), "logical connectors" (Milton and Tsang 1993) and "linking adverbials" (Biber et al. 1999), few studies have investigated the Hyland's similar concept of "transition markers" or "transitions" in relation to successful Chinese and English university students' academic writing. More studies in this area are particularly needed, and I hope that this study makes a substantial contribution to the field.

The primary aim of my research was to identify the characteristics of successful undergraduate and postgraduate student writing through investigation of a dataset of L1 Chinese and English students' assignments. The primary contributions of the research are the compiling of a highly-matched corpus which is particularly helpful for the examination and comparison of Chinese and English students' use of transitions, and a detailed description of Chinese and English students' use of transition markers. This information will further inform student academic writing. As Milton and Tsang (1993:222) claim, "any conclusions about the characteristics of the writing of our students compared to NS [native speaker] students must be limited until similar NS corpora can be collected", in my study the closely-matched Han CH-EN corpus was constructed

as a subset of the BAWE corpus, and the Chinese and English students' writing was matched in terms of level of study, discipline, and genre family. Where possible, texts were collected from the same module, or the most similar one.

The closely-matched nature of the corpus allows us to make generalizable and trustworthy claims. After the construction of the corpus, the transitions were identified through the use of corpus query language rather than working solely from an existing list of transitions, the resulting concordance lines were also examined manually to determine whether or not the items identified were functioning as metadiscourse transition markers. A database of transitions was created in Excel, and statistically significant differences were calculated using independent-samples t-tests in SPSS. Outliers were also identified using SPSS and were taken into account in the research.

Previous studies of student writing and the comparisons between the output of Chinese and native English writers have revealed problems of from a number of perspectives. Firstly, Chinese students have been found to overuse some words and phrases. For example, overused function words, (e.g. *can*, *the*, *some*, *according to*) and common words (e.g. *make*, *besides*, *get*, *help*) were identified by Lee and Chen (2009). Chinese students have been found to make considerably greater use of discourse organizers (e.g. *on the other hand*, *at the same time*) as compared to expert writers (Chen and Baker 2010). They have also been found to use the connectors *on the other hand* and *in the long run* more than English students (Leedham 2015). Secondly, Chinese students have problems with the qualification of their statements. For example, according to Chen and Baker (2010) they only make use of a limited range of hedging devices (e.g., *be likely to*, *it could be argued that*), and they use no NPf bundles which form part of relative clauses (e.g. *the extent to which*, *the way in which*). Li and Wharton (2012) also found that China-based Chinese students utilized hedges less frequently and used frequently strong assertions (e.g. *we must*, *you should*) to engage with readers. Thirdly, Chinese students have been found to have problems with the use of appropriately formal language. For example,

Lee and Chen (2009) and Leedham (2015) found that they used informal language in their academic writing, such as *besides*, *what's more*, *lots of*, and *a bit of*. Fourthly, Chinese students do seem to be not sophisticated in the use of the first person singular form, and prefer to use the plural form (Leedham 2015).

Some features of writing can also be reflected by the use of metadiscourse resources, which take imagined readers' responses into account and play important roles in establishing credibility. Such use varies across genres. For instance, Biber et al. (1999) report that metadiscourse items occur more frequently in conversation than in academic writing and news reportage since conversational partners are more personally involved with their message. Secondly, the use of metadiscourse resources is differentiated across disciplines. For example, Hyland (2005) suggests that there are more metadiscourse devices in the discursive 'soft' sciences than in the 'hard' sciences. Thirdly, metadiscourse is differentiated from one culture to another. For example, Crismore et al. (1993) found that native English students employed a lower density of metadiscourse resources than Finnish students, while Yazdani et al. (2014) found that native English students made greater use of self-mention and engagement markers than Persian students. A comparison of citation style suggested that English writers prefer to emphasize the novelty of their viewpoints, while Chinese writers are more likely to take an uncritical stance towards their sources, due to the influence of the Confucian value of harmony (Bloch and Chi 1995). In short, the use of metadiscourse varies across genre, discipline, and culture.

Inconsistency in the use of metadiscourse was shown in previous studies. For example, in studies of graduate student writing, Hyland (2005: 57) claims the soft sciences rely more on explicit metadiscourse devices, while in a study of textbooks, Biber (2006: 71) suggests that hard disciplines contain more linking adverbials, which are similar to one category of the primary metadiscourse devices, transition markers. With regard to writing proficiency, all 'good' writers, L1 English or ESL/EFL, use a wider range of transitions and use them more

densely (as reviewed in Knoch, Macqueen and O'Hagen 2014). However, Kennedy and Thorp (2007) found that writers at IELTS levels 4 and 6 use markers such as *however* more frequently than writers at level 8 (whose writing is more similar to native speakers'); this suggests that at university level, lower proficiency writers rely more heavily on markers to guide their readers than higher proficiency writers.

A significant problem with many of these studies is that it is difficult to find datasets that compare like with like. Differences in text type (e.g. textbooks vs graduate student writing) or in educational context inevitably have an influence on the nature of the writing produced. To mitigate such complications, I have developed a corpus highly matched by genre, discipline and level of study to enable a comparison of metadiscourse in the writing of successful L1 Chinese and L1 English university students in English.

Since metadiscourse plays important roles in academic writing, I looked at metadiscourse resources and focused primarily on transition markers, both because they are amenable to further study, and because it is important to explore how student writers guide their imagined audiences through arguments. Transition markers are numerous in academic writing. In Hyland's study of in university textbooks (2005: 102), transitions accounted for around 40% of all metadiscourse items and almost 60% of the interactive items. Hyland also reports a high proportion of transitions in Hong Kong Masters and doctoral students' writing.

## **8.2 Summary of Findings**

Not only the differences for the use of transition markers in Chinese and English students' writing matter, but also the similarities between the two groups are of significance for providing the picture of the use of transitions in terms of frequency, genre and discipline. In this section, the findings of my study are summarized based on the five research questions outlined in Chapter 2.

### 8.2.1 Research Question One

#### ***What are the similarities and differences in the use of transition markers by Chinese and English student writers?***

The frequency of use of transitions was the first feature uncovered in my research. It was found that Chinese students make use of transitions more frequently than English students (10.500 vs. 9.171 per 1000 words), but that the difference was not statistically significant ( $p > 0.05$ ) (see Chapter Four). It is worth noting that the finding is different from the general impression given by previous studies that Chinese students tend to “overuse” transition markers (see Chen and Lee 2009; Leedham 2015; Lei 2012). In fact, when a highly matched corpus was employed and more detailed investigation was conducted in this study, another picture of the use of transitions was provided. The qualitative analysis showed where statistics could be interpreted as “overuse/underuse” and when this is not appropriate. For the three categories of transition markers (i.e. comparison, consequence, and addition), a statistically significant difference only occurs in addition, whether outliers are included or not. Chinese students use addition transitions significantly more often than their English counterparts ( $p < 0.05$ ). Thus, the results reveal that from the perspective of the frequency of transitions, the difference between the Chinese and English groups was not particularly apparent. For both groups of students, the use of the three categories was: consequence > comparison > addition, that is, consequence items are used most frequently; comparison items were used the second most frequently; and addition items were used the least frequently in the students’ academic writing.

The results of my research contribute to the body of comparative studies on Chinese and English student writing (see Chen 2006; Leedham 2015; Lei 2012) not only in terms of the overall frequency of transitions, but also in the sub-categories of transition marker. For example, the category of comparison includes two sub-categories (i.e. contrasts and similarity). The findings show

that there were no statistically significant differences between the two groups of students in terms of their use of these two sub-categories. Since Kennedy and Thorp (2007) claimed that lower proficiency writers rely more heavily on discourse markers to guide their readers than higher proficiency writers, the results in my study may show that there is no striking difference in terms of the writing proficiency between the two groups of successful students. Despite this, the fact that Chinese students used the addition items significantly more frequently than their English writers may be related to their writing proficiency.

### **8.2.2 Research Question Two**

***What are the similarities and differences in the use of transition markers within specific disciplines by Chinese and English student writers?***

Generally, it was found that the 'soft' disciplines contain a higher frequency of transition markers than the 'hard' disciplines. In both the Chinese and the English students' writing, the disciplines of Linguistics, HLTM, Law, and Business have higher frequencies of transitions than the disciplines of Engineering, Food Science, and Biology. This finding is generally in line with Hyland (2005) who suggests that 'soft' fields contain more transitions, while it seems not to be in agreement with Biber (2006) which claims 'hard' disciplines contain more linking adverbials.

Previous studies have only provided overall frequencies for transitions in the soft or hard disciplines, but my study has revealed the frequencies for three specific categories (i.e. comparison, consequence, and addition), in terms of specific disciplines. Two sub-categories of contrastive items were also investigated in my study: contrastive items and similarity items (see Chapter 5). Similarity items was not examined in terms of disciplines because they occurred so rarely in the data, but it was found that both the Chinese and the English students made use of contrasts more frequently in non-science disciplines (i.e. Law and Business) than in science disciplines (i.e. Food Science, Engineering,

and Biology). The reason for this might be that non-science disciplines rely more on argumentation, where contrasts are needed to indicate the contrastive relations between arguments, while science disciplines rely more on the demonstration of proofs or the interpretation of quantitative data, where fewer contrasts are needed. The use of visuals and lists was taken into account as a feature which might affect the use of transitions in the two fields. It was found that substantially more visuals and lists occurred in the science disciplines than in the non-science disciplines. The reason for the lesser use of contrastive markers in the sciences might therefore be that scientific arguments or propositions depended on a comparison of statistics, and so contrastive senses were implicitly marked by items like “greater” and “contradicts”, rather than by explicit contrastive markers.

For the category of consequence (see Chapter 6), it was found that Chinese and English students’ writing in the non-science disciplines used consequence items more frequently than students’ writing in the science disciplines. This was particularly the case in the discipline of Law. The reason for this might be that Law is a special soft-applied discipline which needs more consequence items in its case studies to show legal cause and effect relations.

Chinese students made use of overall additions significantly more than English students (see Chapter 7). Statistically significant differences occurred in two specific disciplines, i.e. Engineering and Food Science, both of which are science disciplines. In terms of science and non-science disciplines, it was found that English students used additions more frequently in non-science disciplines (Business and Law) than in science disciplines (i.e. Engineering, Food Science, and Biology). Previous studies (e.g. Peacock 2010) also suggest that additions are used more frequently in non-sciences than in sciences. Chinese students, however, generally used additions more frequently in science disciplines than in non-science disciplines, and the Chinese Engineering writing contained a substantially higher relative frequency of additions than their writing

in any other discipline. This phenomenon was due to the high use of three items in Engineering (i.e. *and*, *furthermore*, and *in addition*).

To sum up, for both Chinese and English students' writing, the hard and soft disciplinary differences generally explain overall differences in transition frequency and the differences between frequencies in the three transition categories.

### 8.2.3 Research Question Three

***What are the similarities and differences in the use of transition markers within specific genre families by Chinese and English student writers?***

Previous studies (Hyland 1998b; 2000; 2005) have investigated transitions in research articles, textbooks, and popular science. In my research, however, the concept of genre is different, and concerns the genres student assignments belong to. Of the 13 genre families in the Han CH-EN corpus, only those which contained over five texts were used for comparisons between the Chinese and English student groups.

The sub-category of contrast accounted for the majority of comparison transitions, and it was found that contrastive items occurred more often in the discursive genre families (i.e. Critique and Essay) than in the technical genres (i.e. Methodology Recount and Explanation) in both Chinese and English students' writing. The reasons for this are related to the social functions of the genre families and their linguistic features. The genre families of Critique and Essay are associated with evaluating or assessing the object of study, as well as argumentation, so they rely more on contrastive items that mark the contrastive relations between arguments. The technical genre families of Methodology Recount and Explanation are associated with description, and do not have this feature of evaluating or assessing the object of study, so they need fewer contrasts. In addition, it was found that the discursive genre families

contain substantially fewer visuals and lists than in the technical genre families. In the technical genre families, some contrastive relations of argumentation may be revealed in descriptions of visuals and lists, rather than contrastive items. In discursive genre families, in contrast, the contrastive relation of argumentation with abstract theories may rely more heavily on contrastive items.

The discursive genres of Essay and Critique contained more consequence items (see Chapter 6) than the technical genres of Methodology and Explanation. The relative ordering of these genre families was the same for both groups of students: Essay > Critique > Methodology Recount > Explanation. This finding relates to the social function and social purposes of these genres, and their staging. Both Essays and Critiques incorporate features of evaluating, assessing or critiquing the object of study, and rely on consequence items that closely relate to arguments, counter arguments and conclusions. In contrast, the genres of Methodology Recount and Explanation tend to describe or account for the object of study, and contain less argumentation. It is noted that Methodology Recounts may include IMRD (i.e. introduction, methodology, results, and discussion), and may therefore include a discussion section, but even in such cases the amount of evaluation and argumentation is quite small when compared with Critiques and Essays.

The addition items (see Chapter 7) may not differentiate across genre families of Methodology Recount, Critique, Essay, Explanation, and Case Study. Both discursive genres and non-discursive genres did not show greater likeliness of the use of addition items.

To sum up, the differences in the social functions, purposes and stages of discursive and non-discursive genres can explain differences in the overall transition frequency and the frequencies of two transition categories, for both groups of Chinese and English students' writing. Addition, the third category of transition, did not have a striking effect on the differentiation of the genre families.

#### 8.2.4 Research Question Four

##### ***What are the similarities and differences in the use of specific transition items by Chinese and English student writers?***

Rather than work solely from existing lists of transitions, I made use of the CQL (Corpus Query Language) in Sketch Engine to identify all the transition markers used by the Chinese and English students in the corpus. By all means, and by manually examining the concordance lines that were generated, 46 different transition markers were identified in the corpus. These findings enrich the transition lists of previous studies (see the list of Hyland 2005: 220). For example, new items like *meanwhile* and *correspondingly* were identified. As mentioned in the first research question, there is no statistically significant difference between the overall frequency of transitions in the Chinese and English students' writing. However, statistically significant differences were identified for specific items. Nine out of the 46 transitions occurred significantly more often in the Chinese student writing than in the English students' writing, and three out of the 46 transitions occurred significantly more often in the English students' writing than in their Chinese counterparts (see Chapter 4). Findings from the prior research point to both overuse and underuse of items by Chinese students (see Leedham 2015; Lei 2012), but there is little mention of the high use of items in English students' writing. The findings in my research may contribute to the research on the frequency of transitions in the two groups of students.

Each transition category contained a different number of items, and the frequency of each of these specific items varied across the categories. There were 18 specific comparison items in (see Chapter 5), and the Chinese students used four of these (i.e. *while*, *on the other hand*, *whereas*, and *in contrast*) more frequently than the English students, while the English students used two (i.e. *however* and *whilst*) more frequently than their Chinese

counterparts. There were 21 specific consequence items (see Chapter 6), which is the largest category of transition markers. The Chinese students used three of these items (i.e. *since*, *thus*, and *nevertheless*) statistically more frequently than the English students, while the English students used only one (i.e. *whilst*) significantly more often than their Chinese counterparts. In the last and smallest category, addition, (see Chapter 7), there were 9 specific items, of which the Chinese students used only two (i.e. *and*, *in addition*) statistically more frequently than the English students. The English students did not use any addition item significantly more frequently than their Chinese counterparts.

### **8.2.5 Research Question Five**

#### ***What further patterns of transition use are observed in Chinese and English students' writing?***

While the frequencies of the specific transition markers revealed in my answer to Research Question Four provide one perspective on the way transitions were used in the Chinese and English students' writing, further would reveal more differences and features. This research focuses on the items with statistically significant differences, and also looks at the important items where there is no significant difference in their occurrence.

In most cases the Chinese and English students followed the same patterns of use. Six patterns were identified in the research, and they fell into two groups. The first three patterns concerned the position of the transitions in a sentence, their co-occurrence, and their level of formality. The second three patterns involved adverbs used as conjunctions, the use of punctuation with transitions, and issue of appropriacy.

#### 8.2.5.1 The patterns concerning the position, co-occurrence, and formality of transitions

The Chinese students preferred the sentence-initial position for most transitions (see Chapters 5, 6, and 7), and English students also preferred this position for some items although to a lesser extent. *However*, the most frequent transition item, occurred at the beginning of a sentence 83.6% of the time in the Chinese students' writing, and 60.2% of the time in the English students' writing. This finding is in line with previous studies (Granger and Tyson 1996; Lee and Chen 2009; Leedham 2015), in which it seems that L1 Chinese students have stronger preference for transitions in sentence -initial position. In addition, it was found that clause-medial *however* occurred significantly less frequently in the Chinese student writing than in the English student writing. When *however* was used clause-medially, it typically followed the Subject or the Adjunct.

The pattern of co-occurrence of transitions with other transitions or discourse markers has rarely been examined in previous studies. The following sentence is an example of the co-occurrence of *but nevertheless*, which simultaneously expresses the relations of contrast and concession.

Motivation can help towards this *but nevertheless* the will of an individual is their own. (EN1ESBUS-0212c)

Generally, this pattern is more common in the English student writing than in the Chinese student writing. For example, the co-occurrences of *and thus*, *but nevertheless*, *but on the other hand* occur in the English student writing, but not in the Chinese student writing. These findings suggest that the English writing may be more sophisticated, since the more complex discourse markers exert the effect of marking two relations at the same time.

The co-occurrence of transitions with informal items was noted in the Chinese student writing, mainly in the category of addition. It was found that items like

“what’s more” and “last but not least” occurred with additions such as “in addition” to add an argument in the Chinese students’ texts. This finding is in line with Leedham (2015) who reported that Chinese students made use of informal connectors. Similar informal items were not found in the English students writing. This finding suggests that Chinese students do not have full awareness of the need for formality in academic writing, or the way in which formality is expressed. Their English counterparts were more sophisticated by comparison, perhaps because they had more exposure to various types of writing with different levels of formality, in an English-speaking environment. This might have made them more aware of the level of formality appropriate in academic writing.

#### 8.2.5.2 The three patterns concerning grammar issues

The first pattern concerning grammar issues involved the use of adverb transitions as conjunctions, and has rarely been discussed in previous studies. This linguistic phenomenon mainly occurred with comparison and consequence transitions (see Chapters 5 and 6). It was found that both groups of Chinese and English students used transitions such as *however*, *rather*, and *similarly* to connect two clauses within a sentence. These items functioned in context as adverbs, however, which means that they might be expected to connect two sentences, although the students actually used them incorrectly as conjunctions. It was noted that the use of adverb transitions as conjunctions mainly occurred in the English student writing. In the category of consequence, it was found that English students made use of consequence items such as *therefore*, *hence*, and *as a result* to connect two clauses within a sentence. The items *therefore* and *as a result* were also used in this way by the Chinese students, so both groups of students used adverb items as conjunctions, although this use was more evident in the English students’ writing. Chinese students are generally taught English grammar systematically in their secondary education, so they may have a stronger awareness of word class categories, while English students may not have been taught English grammar to the same

extent. However, it is also possible that the nature of English may be changing, and that a use that was previously considered 'non-standard' is not becoming more mainstream.

Secondly, there were differences in the use of punctuation with transition markers in the Chinese and English student writing. It was found that Chinese students conformed more to traditional grammar expectations in terms of their use of commas (see Chapters 5, 6, and 7). They tended to use commas after a sentence-initial transition. For example, they used the patterns "*However,*", "*Therefore,*" and "*Furthermore,*" more often. In contrast, their English counterparts tended not to use a comma after these transitions. However, on the whole neither group used commas after monosyllabic sentence-initial items (e.g. *so*). Chinese students were also more likely than their English counterparts to use a transition after a semi-colon, in the patterns "*; however*", "*; in contrast*", and "*; consequently*". The choices of the Chinese students may indicate more awareness of traditional grammar rules, due to systematic English grammar courses in their secondary education.

Sometimes the Chinese students used transitions inappropriately, due to the influence of their first language. For example, they used *although* with *but* to mark a concessive relation, because in Chinese "虽然(suī rán)" and "但是(dànshì)", the equivalents of "although" and "but", co-occur with this function. Another typical example which shows the influence of first language is the item *on the other hand*, which has also been discussed in previous studies (e.g. Leedham 2015). In the Chinese language, "另一方面(lìng yī fāng miàn)", the equivalent of *on the other hand*, only shows the other side of something, and does not have a contrastive sense. This is reflected in the use of *on the other hand* in Chinese student writing in English. The Chinese writers used it following the item *firstly* to add an argument without contrastive sense, with the sense of "on one side...on the other side", and together with *and*, in "And on the other hand". In addition, both groups of students used "on one hand" without the article "the", a usage which is not presented in the *Longman Dictionary of*

*Contemporary English* (2014: 829). It is noted that as described in the chapter of methodology, the expression of “inappropriate” or “appropriate” in the thesis implies the researcher’s evaluation, rather than prescribing the usage of these transition items.

Another type of inappropriate use of transitions was the result of confusion between items with similar meanings. It was found that the Chinese students used sentence-initial *while* with a comma in the same way as they used “However,” to express contrastive sense. Furthermore, the Chinese students placed the items *while* and *whereas* in sentence-initial position in the same way as *however*, to mark a contrast with the argument in the previous sentence. It is noted that these inappropriate uses of transitions did not occur in English student writing.

The following examples, however, are those that occurred in both the Chinese and the English student writing. Both groups of students used the item *thereby* in the same way as *therefore*, sentence-initially to introduce an argument to mark the relation of cause and effect. However, according to the dictionaries and the BNC (text type: written books and periodicals), the item *thereby* is rarely used in this, although it has a similar meaning to *therefore*. The Chinese students also used *in addition* and *additionally* in successive sentence to add arguments; the English students also used items of *furthermore* and *further* in successive sentences to serve the same function. However, these two pairs of items seem to have the same meaning for each. For example, the items of *furthermore* and *further* have the same definition in the *Oxford Learner’s Dictionary of Academic English* (2014: 352). The findings suggest that they were not aware of the difference between these items. In short, the inappropriateness of the use of transitions occurs in both the Chinese and the English student writing, which reflects the difficulty of transition use, specifically items with very close meanings.

To sum up, the answer to Research Question Five shows that the use of transitions involves many complex and complicated factors. English students as native speakers may have the advantage of greater exposure to academic writing, so a better understanding of the items in terms of meaning and formality is reflected in their writing. On the other hand, Chinese students may have the advantage of better knowledge of English grammar, so the use of punctuation with transitions is more accurate in their writing. However, both groups of students use transitions appropriately and inappropriately, and this is worthy of note.

## **8.3 Applications**

In this section, I will focus on the applications of the findings presented in earlier chapters, to consider what they might offer to students, writing tutors, and lecturers, and how they can be put into practice in the learning and teaching of academic writing. This section is divided into four sub-sections, concerning awareness raising, teaching in terms of genre families and disciplines, teaching in terms of specific items, and in the development of teaching materials and dictionaries.

### **8.3.1 Awareness raising**

Hyland (2005) claims that the significance of metadiscourse in academic writing is widely neglected by teachers and students, with the result that writers lack full awareness of the use of metadiscourse to communicate with their readers. Likewise, transition markers, as one of the biggest categories of metadiscourse resources, may not receive sufficient attention by teachers and student writers. Transition markers serve the useful function of interpreting pragmatic connections between steps in an argument, and, like other metadiscourse resources, they reflect how appropriately the writer assesses the readers' understanding and likely response to their use. However, the roles metadiscourse plays in academic writing have not been paid sufficient attention

by both writing textbooks and teachers. As Hyland (2005: 178) points out, EFL and EAP (English for Academic Purposes) writing books treat metadiscourse features “in a rather piecemeal and cursory way or ignoring them altogether”, and “this neglect of metadiscourse in EFL textbooks may be duplicated by teachers who rely on such texts as resources”.

The features of transition markers identified in this research, however, show the how important it is to be aware of the use of transitions in student academic writing. Firstly, knowledge of the variation in the frequency of transitions across the genre families and disciplines may be helpful for lecturers and writing teachers, so they can advise their students. Texts in different genre families and disciplines contain different frequencies of transitions. For example, the findings suggest that texts in discursive genre families and non-science disciplines may contain greater use of transitions (especially comparison and consequence) than those in technical genre families and science disciplines. Secondly, for specific transitions, the frequencies vary across the 46 transition markers. There are also similarities for the use of these items by students. For example, both groups of the Chinese and the English students use the item *however* most frequently in their writing. Lecturers and writing tutors should also be aware of the fact that even proficient student writers, with high grades may still use transitions inappropriately, using the adverb transition *however* as a conjunction to connect two clauses within a sentence, for example. In short, the findings from my research are helpful to raise the awareness of lecturers and writing tutors of the fact that transition markers vary across genre families, disciplines, and specific items, as well as drawing their attention to inappropriate use of transitions in student writing.

### **8.3.2 Teaching transitions in genre families and disciplines**

In order to teach students about transitions in terms of genre families and disciplines, lecturers and writing tutors need to take into consideration the students' target needs (Hyland 2005). There are many innovative assignment

types, so they have to “extract the main features of any unfamiliar assignment genre”, which is a challenge in UK Higher Education (Leedham 2015: 134). In my research, the overall transitions and the three sub-categories (i.e. comparison, consequence, and addition) were investigated separately in terms of genre families and disciplines. The findings would be helpful for pre-sessional and in-sessional writing tutors, who can see whether the frequency levels of transitions in their students’ writing are acceptable or normal, with reference to the genres and the disciplines. Specifically, discursive genre families (e.g. Essay and Critique) may contain greater use of transitions (especially comparison and consequence) than technical genre families (e.g. Methodology Recount and Explanation), and non-science disciplines (e.g. Law) may incorporate greater use of transition markers (especially comparison and consequence) than in science disciplines (e.g. Biology). The features of the use of transitions identified in this study are from the examination of high graded assignments, so they would be helpful for students who want to have similar high grades. In short, the findings in the research on transitions in genres and disciplines can be brought into our courses to provide students with more information to meet their needs in their target situations.

### **8.3.3 Teaching specific items**

In all three categories of transitions, there are items that are used statistically significantly more frequently by the Chinese students or more frequently by the English students. Items with high frequencies may be regarded as overused items (see Crewe 1990; Leedham 2015; Lei 2012), although this is hard to determine since in my study both subcorpora have equal status, and both contain examples of appropriate and inappropriate usage. A number of outliers were identified. For example, there are 19 instances of *therefore* identified in one Chinese student’s text (ID: 0257e), and there are 11 instances of *so* identified in one English student’s text (ID: 0146c). These particularly high uses of specific transitions may be considered examples of stylistic preference (Biber et al. 1999) or alternatively as examples of poor performance (Leedham 2015;

Crewe 1990). Therefore, any outliers with particularly high frequencies should be taken into consideration when designing writing courses, together with items that are used significantly more frequently in the Chinese or the English subcorpus.

The *expansionist* approach provided by Crewe (1990) may be an effective one to solve the problem of transitions that occur with particularly high-frequency discussed above. This approach suggests that writers replace the transitions with detailed language that explicitly shows the connection between the steps of the argument. For example,

Table 8.1: Paraphrases replacing the transitions (adapted from Crewe 1990: 323)

Paraphrases	Replacing	Transitions
On account of this situation Because of these events As a consequence of this One result of this step was...	}	Therefore, thus
In spite of this A different view is... In opposition to this	}	However, on the other hand
That this is untrue is shown by... This is denied by...	}	On the contrary
This is supported by... Another consideration is...	}	Further, in addition
Another (more) important point is... A decisive factor in this was...	}	Furthermore, moreover

The table of above is an adaptation of Crewe (1990: 323). Other items which are not transitions have been excluded from Crewe's original table (see Appendix VI). It is noted that most of the paraphrases contain the referential pronoun 'this', which serves to connect the former step with the step within the sentence, and the other elements mark the relations of the steps in the argument, e.g. "in spite of" marking the concessive relation. The paraphrases in the table include three categories, i.e. consequence, comparison, and addition. This means that the three categories of 46 TMs in the research can be paraphrased and replaced as above. Furthermore, this type of potential paraphrasing language is unlimited. In the writing classroom, lecturers and writing tutors can provide students with the table and encourage them to analyse the relations behind the steps of argument. These expressions can be learned and more paraphrases may be created by students in practice.

Apart from this, there are other teaching principles for transition teaching. "Consider the writers' prior writing and learning experiences" is a metadiscourse teaching principle proposed by Hyland (2005: 182), which needs to be taken into account in the teaching of specific transition items. Students from different cultures may have different understandings or conventions concerning interactions and engagement in their academic writing. For example, Chinese students are profoundly influenced by the traditional Confucius idea of harmony as opposed to argument with others. The idea causes them to be cautious to use corresponding language. The cultural influence on the use of transitions is to some extent revealed by their statistically significantly lower use of the typical contrast item *however*. As lecturers and writing tutors, we should acknowledge the possibility of differences caused by the influence of different cultures. The findings in this research identify statistically significant differences between Chinese and English student writing and possible cultural explanations for these differences. It is possible that findings for specific items are helpful for lecturers and writing tutors to provide them with relevant and clear models, so that they can suggest writing strategies, and appropriate feedback to help students improve their writing.

Hyland (2005: 183) also suggests another metadiscourse teaching principle, i.e. “view learning to write as learning to use language”. He claims that “developing an awareness of grammar has to be integrated into the exploration of texts and contexts”. In my research, some patterns of co-occurrence of transitions with other transitions were identified. For example, the co-occurrences of *but on the other hand* and *but rather* were identified in English student writing, which to some extent shows the complexity of metadiscourse use and the sophisticated writing skills of the English students, because it shows more complex grammar structures compared with the use of a single transition. Teaching these patterns as discrete components might lead students to perceive as lexical co-occurrences or as complex grammatical structures. Teaching them in contexts, however, might enable students to learn the skills of marking two relations between two steps of an argument, acquiring not only how to use complex language itself but also improving their ability to communicate with imagined readers and achieve the purpose of their writing.

The authentic examples of the 46 transition markers can be good models for writing courses. Hyland (2005: 184) points out, to be useful and productive, the examples the students are exposed to should be “authentic” and “relevant” ones. The examples presented in my study are typical ones, which demonstrate how the 46 transitions are used by Chinese and English students in terms of positions and co-occurrence, as well as inappropriate and appropriate use, and even grammar issues. The authentic and relevant examples from sophisticated Chinese and English students are closer to the context of student writing, so students may learn more from them than from examples taken from a much higher level of writing, such as professional journal articles, or from texts that are distant from student writing contexts. The subjects and communicative events which are familiar to students should make it easier for students to understand how the writers communicate with their audiences, and should thus help them employ these metadiscourse devices more effectively into their own writing.

#### 8.3.4 Teaching materials, reference books, and dictionaries

There are problems with teaching materials for English writing in China. Leedham (2015) reports that Chinese student writing is affected by the problems in popular English writing guides and reference books for Gao Kao (the university entrance examination), thereby influencing their later academic writing in the UK. These teaching materials tend to contain a list of connectors merely with their equivalent meaning in Chinese, rather than providing the usage, contexts, or formality of each item. A writing guide may provide limited model texts in response to the corresponding examination rubrics, but these texts often feature a high use of connectors, particularly at the sentence-initial position. In addition, as discussed above, EAP (English for Academic Purposes) writing books tend to neglect the teaching of transitions, which will affect teachers who rely on such books (Hyland 2005). This suggests that there is scope for the improvement number of materials on transition teaching.

The findings of my research may be used as a complement to the teaching materials on the use of transition markers. Firstly, all the 46 items were categorized into three categories, and their explanations are provided with reference to the authoritative dictionaries such as the *Oxford Learner's Dictionary for Academic English* and the *Longman Dictionary of Contemporary English*, through which students can obtain the exact meaning of these specific items in English. Secondly, each item was illustrated with typical examples, and analyzed from the perspective of their positions in a sentence, their formality, the surrounding punctuation, and any common issues with appropriateness. Through these dimensions, students can obtain a clear picture of how these transition markers are used in authentic texts. While the texts were written by students, they had received high grades, and the contexts might be closer to learners' situations than other materials.

Apart from the teaching materials, the findings of the research can also be employed into the dictionary edit. Dictionaries are a primary tool, so students and teachers may expect to find out a lot of information on an item in them. In fact, it was found that there is room for improvement in terms of transitions for these widely used dictionaries. We commonly have the same explanations and examples for two different items, e.g. *nonetheless* and *nevertheless* in the *Oxford Learner's Dictionary for Academic English* (see Chapter six). It is obvious that according to these explanations, students or even teachers cannot tell any difference between them when they try to choose which one to use in their writing. In addition, they do not help writers distinguish between some items which have similar senses, for example the *therefore* group of items in Chapter six (i.e. *therefore*, *hence*, *as a result*, *consequently*, *as a consequence*, and *so*). My research, however, provides ways to tell the differences between these items. For example, while the items of *nonetheless* and *nevertheless* are extremely close in meaning, it was found that the item *nevertheless* is substantially more commonly used than *nonetheless* in the BNC (Written Books and Periodicals) and the BAWE corpora by student writers and professional writers. In addition, the different patterns of the *therefore* group were identified in the research, i.e. position, co-occurrence, and even the common but inappropriate uses of these items. If these features are added in dictionaries, this would help students and teachers have a better understanding of the use of these items.

#### **8.4 Limitations and future research**

The limitations of this research are primarily related to the data and the methodology. The first limitation is the data, and is associated with the BAWE corpus and the compiling of the Han CH-EN corpus. The BAWE corpus is a collection of data from four universities, i.e. Oxford Brookes University, Reading University, Warwick University, and Coventry University, rather than all the universities in the UK. Moreover, the number of disciplines and genres does not cover all in the UK, although the builders of the corpus made great effort (Alsop

and Nesi 2009: 73). Since the collected texts were required to be student assignments awarded high grades, the texts from other grade levels were not included, and other types of texts, such as those for posters and presentations, were excluded. The Han CH-EN corpus, as a subset of the BAWE corpus, reflects the limitations of the BAWE corpus.

Since the aim was to compile a highly matched corpus, the number of texts in the Han CH-EN corpus is not very large, and the size is also not large (156 texts and 374,835 words). Additionally, the variable of language only takes into consideration L1 (First language) Chinese and English, but not the specific cultural backgrounds. We do not know whether Chinese students were from China's mainland Mandarin-speaking provinces or from Cantonese-speaking areas (mainly Guangdong and Hong Kong), although there are some economic and historical factors which might have influenced the students' education. For example, the language environment of Cantonese-speaking students from Hong Kong may be influenced by the long-term governance of the UK and its use of English as an official language during that period. The language environment is different from Mainland China where the official language has always been Chinese. In short, the data limitations in this research are primarily the size of the corpus, the text types, and the specific issue of the Chinese L1.

The final limitation is in the research methodology. While this study focuses on transition markers, as discussed in section 8.2.3, paraphrases have not been investigated. It is claimed that these paraphrases can be used as an alternative to continually repeating some specific transitions, since they have the same function as transition markers. For example, a paraphrase, such as *On account of this situation* or *Because of this feature* can be used to replace the transition marker *therefore*. It is noted that the expression is not fixed and varies according contexts, so the number of paraphrases can be virtually unlimited. In addition, in the methodology of this study, I adopted the concept of transition

markers from Hyland (2005: 50), and the investigation mainly focused on “conjunctions and adverbials”, so paraphrases have not been examined. This might be a limitation. If the problem can be solved in the future, it would improve the examination of transitions, and more features would be found regarding the writer-reader communication in student academic writing.

For the future research, the first factor we may change is to enlarge the corpus based on the Han CH-EN corpus. It is noted that any new texts from Chinese and English students would have to meet the same collection criteria as the Han CH-EN corpus. In other words, they would have to be highly-matched in terms of level, discipline, and genre families. Efforts can be made to collect Chinese student texts from more universities in the UK or in China. For example, we can collect data from international universities, such as Xi'an Jiaotong-Liverpool University and the University of Nottingham Ningbo China, which are English-medium-instruction universities and offer degree courses in China (see Chen 2017). The English texts can also be expanded to include texts from other corpora, e.g. the Michigan Corpus of Upper-Level Student Papers (MICUSP). A comparison of the use of transitions in BAWE and in MICUSP can be made to identify similarities and differences for the writing in the two groups of L1 English students. Based on these expanded corpora, more accurate generalizations of Chinese and English students' academic writing might be made.

Interviews can be conducted in the future studies. In this study, some interview results from Leedham (2005) and Nesi and Gardner (2012) are included, but there are no direct interviews of the student writers, lecturers and tutors. For a future study, interviews can be conducted to explore the reasons behind students' use of transitions, lecturers' and writing tutors' opinions about these features and how they grade these texts. Through these interviews, more suggestions and advice would be collected for EAP teaching and learning.

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## **APPENDICES**

### **Appendix I. Vande Kopple's classification system for metadiscourse (Vande Kopple 1985: 83-85)**

Some materials have been removed due to 3rd party copyright. The unabridged version can be viewed in Lancaster Library - Coventry University.

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**Appendix II. Crismore et al.'s categorization of metadiscourse (Crismore et al. 1993: 47-54)**

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**Appendix III. Hyland's interpersonal model of metadiscourse (Hyland 2005: 49)**

Some materials have been removed due to 3rd party copyright. The unabridged version can be viewed in Lancaster Library - Coventry University.

#### **Appendix IV. Ädel's model of metadiscourse (Ädel 2006: 38)**

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**Appendix V: How to replace Implicit markers with Explicit markers (Crewe 1990: 323)**

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