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THE ACQUISITION OF ADVANCED LEVEL CHINESE

HERITAGE LANGUAGE (CHL) LEARNERS：A COMPARATIVE

ANALYSIS CONCERNING THE ASPECT MARKER "LE 了"

A Thesis Presented

by

JINGJING AO

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

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September 2021

East Asian Languages and Cultures

**THE ACQUISITION OF ADVANCED LEVEL CHINESE HERITAGE
LANGUAGE (CHL) LEARNERS：A COMPARATIVE ANALYSIS
CONCERNING THE ASPECT MARKER "LE 了"**

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ABSTRACT

The Acquisition of Advanced Level Chinese Heritage Language (CHL) Learners: A Comparative Analysis Concerning the Aspect Marker "LE 了"

September 2021

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Directed by: Professor Zhijung Wang

Over the decades, research on heritage language learners has been quite popular, but most studies concern Russian, Spanish and other languages rather than Chinese. The Chinese heritage language learner's studies focus mainly on K-12 students and their learning motivations, writing characteristics, and identification recognition and those concerned with language acquisition address their vocabulary and verbal Chinese development. There have been very few studies about learning grammar. This study emphasizes on the acquisition of the aspect marker LE among advance learners.

To investigate the acquisition characteristics of advanced CHL learners, this study adopted the advanced CHL learners as the research group and the advanced CFL learners and native speakers as the control groups. A questionnaire survey was designed to investigate the participants acquisition abilities. The survey utilized "similar semantics, different contexts and English similarities" related to the aspect marker LE as the interference factors to investigate comprehension abilities and presented five different

situations of using LE to investigate production abilities. There were 198 participants in the survey, and 183 effective questionnaires were collected.

Analysis of the data showed the following results: all three groups of subjects are equally affected by "similar semantics" and "different contexts" in comprehending the meaning of LE. But CHL and CFL learners are more affected by English interference than NS. In the production survey, CHL learners did better than CFL, but not as well as NS. In terms of comprehension on the aspect marker LE, CHL learners did better than CFL, but not as well as NS. The understanding and production abilities of CHL learners in the United States are better than those of CHL learners in China, and the influence of English on both CHL groups is quite similar.

The most important findings of this research are as follows: (1) Even when CHL learners reach the advanced level, they behave nearly native like in language level, but cannot reach to the level of a native speaker. (2) Advanced CHL learners share similarities with CFL learners in production abilities. (3) The target Chinese language environment has no obvious influence on advanced CHL learners.

The results of this study have the following teaching implications: 1) Students are more likely to acquire LE in context; 2) Students are more likely to understand LE after they have clearly understood the semantic meaning of LE; 3) It would benefit advanced Chinese learners in acquiring LE if their study program could tailor classes for them; 4) If the teachers are explicit in explaining the meaning of LE, students will be more likely to understand the semantic meaning of LE and utilized it correctly.

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CHAPTER 1

INTRODUCTION

Research on heritage speakers has been greatly increasing recently. Montrul (2008) commented that heritage language learners' education has become a popular research area (Briton, Kegan & Bauckus 2008, Kondo-Brown 2006, Valdés, Fishman, Chávez & Pérez 2006), but most of the studies focus on heritage speakers of Spanish, Russian, Korean and other language aside from Chinese (Montrul and Slabakova 2003, Bruhn de Garavito 2002, Cho 1999, O'Grady 1997, Polinsky 2008a, 2008b). In fact, there have been only a handful of studies related to Chinese heritage language (CHL) learners, and most of these focused either on literacy or character issues (Ke 1998, Tse 2001, Chu 2008, Keiko, Zhang & Yang 2008, Xiao 2006). There are other studies that mainly explored CHL learners' learning motivation (Lu & Li 2008, Yang 2003, He 2006, Wen 1997, 1999, 2011), or their living and study community and identity issues (He 1997, 2001, 2003, 2006, 2008, Weger-Guntharp 2006, Comanaru & Noels 2009, Wong & Xiao 2010). Moreover, these studies involved K-12 students, and there have been only a few concerning advanced level CHL learners.

Several pioneering studies of CHL college students explore pedagogical methods in cultural teaching among intermediate learners (Zhou 2017), language-drill effectiveness among beginners (Wang 2017), writing-error type comparisons between beginning and intermediate students (Fan 2017), and pedagogical methods among advanced learners (Shao 2017). However, few studies investigate CHL learners' grammar-acquisition abilities. As Wilkins (1972) made clear grammar acquisition is the

key to learning a language. In this study, we explore the acquisition of advanced CHL learners with regard to the aspect marker LE.

Previous studies of CHL aspect marker acquisition investigated K-12 CHL learners. For instance, Li (1990) investigated the aspect marker in children learning Mandarin and Li & Bowerman (1998) and Li & Shirai (2000) investigated the acquisition of the aspect marker. Ming and Tao (2008) developed a CHL material corpus and conducted a case study on the use of the perfective marker LE. While Jia and Bayley (2008) studied acquisition of the perfective marker among children and adolescents.

The current study focuses on the characteristics of the aspect marker "LE 了" among advanced CHL learners. Duff and Li (2002) stated that the perfective LE represents a component of Mandarin grammar that poses many challenges for Mandarin second language learners, language teachers and linguists" (p.419). Other studies are consistent with the idea that LE is one of the most difficult grammar points for learners of Chinese as a foreign language (CFL) (Zhao 1997, Sun 1993, Wen 1997, Li & Thompson 1981, Chang 1986, Smith 1991). Here we examine whether advanced CHL learners also have difficulty in the acquisition of the aspect marker LE and what differences occur between acquisition by advanced level CHL learners and other groups of learners.

Earlier studies have shown that CHL learners are different from CFL learners and native speakers (NS) (Montrul 2008). However, they rarely mention what these empirical and actual differences are. Campbell and Rosenthal (2000) contend that: "HL [Heritage Language] learners have acquired 80% to 90% of the grammatical rules that govern words, phrase, sentence, and discourse production and recognition" (p.167). On the other

hand, foreign language learners "have the ability to produce and comprehend a high percentage (estimated 60% to 65%) of the grammatical rules at all levels" (p.169).

This study is designed to ascertain the differences between advanced CHL learners and other groups of Chinese language learners with regard to the acquisition of the aspect marker LE. It is hoped that the study can help future advanced CHL learners have a better understanding of their strengths and weaknesses in order to improve their language abilities. In addition, this study's results can help educators design activities and classes that better reflect advanced CHL learners' needs. Lastly, this study draws attention to advanced CHL learners, as they are understudied compared with other Chinese learners.

While a complete acquisition of a grammar point should include syntactic structural analysis, semantic analysis, and pragmatic analysis, due to many limitations, this study focuses only on the basic semantic functions of LE. In order to learn the acquisition characteristics of LE, this study uses three groups of research subjects: advanced CHL learners constitute the experimental group, and advanced CFL learners and native Chinese (NS) speakers act as the control groups. A questionnaire has been designed to investigate three aspects of the language abilities of the participants: 1) comprehension ability, that is, the understanding of the aspect marker LE when it is used in a specific language context; 2) production ability, which refers to the use of the aspect marker LE in a specific language context; and 3) an acceptability judgment task to see whether their English background affects the comprehension ability of advanced CHL learners.

In both the comprehension and production portions of the survey, the CHL group did better than the CFL group. As for the influence of English on their comprehension ability, there were no obvious differences between these two groups. The comprehension and usage of LE by the CHL group was worse than for the NS group; furthermore, the CHL group was influenced more by English than the NS group. The data further revealed that the CHLUSA (CHL learners in United States) did better than the CHLCN (CHL learners in China) in both comprehension and production. The CHLUSA and CHLCN were influenced equally by English.

The results show that CHL learners are quite different from CFL learners and native speakers in acquiring the aspect marker LE, and some key pedagogical implications from our research results arise for both students and instructors. We found that students can acquire le better in context than in a single sentence and can learn better when semantic functions are made explicit. Instructors could facilitate learning with tailored course arrangement and teaching methods that explicitly demonstrate the semantic function of LE in the classroom.

CHAPTER 2

LITERATURE REVIEW

This study focuses on the advanced CHL learner's acquisition with regard to the aspect marker "LE 了". In this chapter, we are going to review the past studies about heritage language (HL) learners, including CHL learners. Then, we will review the definition of HL learners and propose a working definition for CHL learners in this study. Next, we will focus on studies about CHL learners in the literature. Finally, we will review the linguistic issue of "LE 了", followed by studies related to LE acquisition among CFL learners and CHL learners.

2.1 Past studies on heritage language learners

There are many heritage language (HL) learners in the Unites States "who are raised in households where a language other than English is spoken." (Valdés 2001). The number of Chinese heritage learners is greatly increasing. The earliest research about heritage language is by Fisherman (1964) established 'Language maintenance and language shift as a field of inquiry'. However, this idea did not win attention immediately. He (2008) states that "Fishman's idea showed out its importance and significance until recently when heritage language began to be recognized as valuable national and personal resources" (Wiley & Valdés 2000, Peyton, Ranard & McGinnis 2001). This realization makes researchers aware that there are many things in this new area waiting to be explored. Since then, a group of studies related to HL have been emerging.

The philosopher Wittgenstein (1973) thinks that: "Language is not a metaphysica present, nor a coherent system, but a context-specific tool for achieving our purpose." Past heritage language researchers have realized how significantly the learner's identity is affected by the everyday use of language. Tse (1997) tried to analyze the relationship of ethnic identity, attitudes and motivation among HL development. In a further study, Tse (2000) tried to learn whether the "ethnic feeling" affects language learning. The experimental result confirmed his assumptions. Similarly, Li (1994) reaffirmed that HL proficiency is related to a well-developed sense of ethnic identity. This research result is in agreement with other scholars' findings (Cho 2000, Kondo-Brown 2005). He (2006) did a detailed study related to the identity-based approach concerning how CHL learning takes place as the learner moves across time and space (He & Xiao 2008).

Education related to HL has won more attention than before, but it is still considered "atheoretical" (Valdés 2000). "There is a serious need for Americans who are highly competent in language other than English, especially languages that, historically, have rarely or never been taught in our schools and universities" (Campbell & Rosenthal 2000, p.177). Heritage language education (HLE) in its "purest" form would refer to education targeted at heritage language learners (Hornberger & Wang 2008). Indeed, according to Baker (2001), "the term heritage language education seems to have originated with Canadian programs, despite the existence of comparable programs in the United Kingdom, Australia, and other countries that have gone by other names." These has been called community, ancestral, ethnic, immigrant, minority, original, non-official, or second/third language programs (Duff 2008). There are other research works related to heritage language policy, such as policy in the United States (Lo Bianco 1999), Australia

(Lo Bianco 2001a), the United States, the UK, and Australia compared (Lo Bianco 2001b), and Scotland (Lo Bianco 2008, 2001c).

Research about CHL learners is generally more recent than other heritage languages (McGinnis 2008). It comprises a relatively small body of literature. A detailed review is presented in the CHL learners' section. But first we consider a working definition of CHL learners for the current study.

2.2 Definition of heritage language learners

The experimental group of this study is advanced CHL learners. The definition of advanced CHL learners is critical. We will have a workable definition for advanced CHL learners for this study in this section.

The labels and definitions that we apply to heritage language learners are important, because they help to distinguish the status of the learners and the languages they are learning (Wiley 2001). Heritage learners, however, cannot be defined only by assessing their language abilities or by determining the relationship between their dominant and home language (Hornberger & Wang 2008). As Skuttnab-Kangas (2000) stated: "It is difficult to define both minority and different types of minorities." (p.489)

Since the definition is very important, let's review the past definitions of heritage learners/speakers. In the first full-length edited volume about HL learners (Webb & Miller 2000, Hornberger & Wang 2008), Draper and Hicks (2000) defined an HL learner generally as: "someone who has had exposure to a non-English language outside the formal education system. It most often refers to someone with a home background on that language, but may refer to anyone who had had in-depth exposure to another language."(p.19).This definition can be applied to some of the heritage language learners

in English dominant language environment. There is no unified definition formed of heritage students (Hornberger & Wang, 2008, Wiley 2001). Scholars define HL learners from different perspectives. This study had a through literature review of HL learners' definition in order to get a working definition for this research participants.

From a program perspective, Wong and Green (2001) stated: "programs that teach languages other than English have traditionally aligned themselves with foreign language and bilingual education". While "heritage language speakers have often been students in these programs, they have only recently been recognized as individuals with needs that are different from those of other students" (Wiley 2001). Wiley suggested that to ensure that heritage language programs do not merely become symbolic gestures, imposed by outsiders to the community, it is important to define heritage language programs from a community perspective. As Corson (1999) suggested: "Community-based education begins with people and their immediate reality. Above all, it allows them to become meaningfully involved in shaping their own futures through the school and the other agencies in their community. (p.10) According to these statements, when define CHL in this research, this study will consider the influence from the program and community.

From a language use perspective, the definition becomes even more complicated. Horvath and Vaughn (1991) distinguished four types of language use perspectives: sociolectal perspective, standard plus regional dialects, diglossia and bilingual/multilingual perspective. Wiley commented: "By looking at heritage language communities in terms of these four perspectives, we will have a better idea of who the learners are and what they need." However, there is no workable definition of heritage learners that could include these four perspectives. This study is focused on CHL

language acquisition, the definition about CHL will focused more from the linguistic perspective.

From language ability perspective, Polinsky and Kagan (2007) presented a detailed description of heritage speakers:"Heritage speakers are people raised in a home where one language is spoken who subsequently switch to another dominant language. The version of the home language that they have not completely acquired—heritage language—has only recently been given the attention it deserves from linguists and language instructors." (p.368) This definition is focuses on the proficiency of language and emphases on spoken language. However, the reading and writing abilities are not mentioned. This study needs to consider the reading and writing abilities when define CHL learners,

From language development perspective, Montrul (2008) suggested that heritage speakers include: "the children of first-generation immigrants born in the host country to at least one first generation parent. And also, immigrant children who come to the host country at different ages in childhood, including children who immigrant before the age of 3-4 that expose to the heritage language and the majority language at the same time, or those who immigrant after age 4-5 whose heritage language is the dominant language until they begin pre-school, and also who start school in the heritage language environment and immigrant late after age of 7-8." (p.162). Montrul's definition approached the issue based on critical age of learning language. It related to birthplace and onset of the heritage language. This definition offered an easy way for those who might be heritage speakers to figure out their identities. To some extent, "this definition may reflect and attempt to apply nonstigmatizing nomenclature to speakers and learners

of languages other than English" (Wiley 2001). This definition reminds this study to consider family background when define CHL learners.

There are other definitions of heritage speakers influenced by Valdés's definition of heritage language speakers. For instances, definition of Spanish, Russian, Korean and other heritage language learners (Montrul and Slabakova 2003, Garavito 2002, Cho 1999, O'Grady 1997, Scalera 2000, Kagan & Kudyma 2012). Valdés (2000) suggested that "A heritage language speaker is someone who has been 'raised in a home where a non-English language is spoken and who speaks or merely understands the heritage language, and who is to some degree bilingual in English and the heritage language" (p.1). The following year (2001), Valdes proposed another detailed definition, categorizing heritage language students into two types: (1) individuals having historical or personal connection to a language such as an endangered indigenous language or immigrant language that is not normally taught in school; or (2) individuals who appear in a foreign language classroom, who are raised in homes where a non-English language is spoken, speak or merely understand the HL, and are to some degree bilingual in English and the HL. (Valdés 2001, pp.37-38).

Based on Valdés' definition, HE (2006) defined CHL learners as follows: "I define the CHL learner broadly as a language student who is raised in a home where Chinese is spoken and who speaks or at least understands the language and is to some degree bilingual in Chinese and in English. More specifically, I focus on learners who see Chinese "with a particular family relevance" (Fishman 2001, p169) and who is English-dominant with no or limited reading/writing ability in Chinese. In other words, I focus on CHL development rather than maintenance." This direct definition about CHL learners

gave infinite inspirations about define CHL learners for current study. However, this definition is more focused on English-dominant language environment with no or limited reading/writing ability in Chinese. This definition is specific and combined with emphasis but limited to HE's identity issue research.

Xiao (2006) adopted the national standards for foreign language learning (1999) to characterize CHL learners as follows: These (heritage) students may come to class able to converse in the language in home and community situations but may lack the abilities to interact comfortably in more formal settings. Further, they may be quite comfortable with oral language but possess limited skills in reading and writing (p. 29). This study will adopt the idea that CHL learners are those who have spoken language ability but no or limit reading and writing skills.

From the different definitions we have reviewed above, we can see that "as with any attempt to apply a single label to a complex situation, defining heritage language is problematic" (Wiley 2001, p.29). It may be more reasonable to define it in a multidimensional way. Based on the above-cited definitions by different scholars, especially with reference to that of Valdés (2000, 2001), which "proves the most useful definitions so far" (Wiley 2001), the current study defines the term broadly from linguistic perspective: "An advanced CHL learner is someone who is raised in a home or an institution with at least one native Chinese speaker where Chinese is both spoken and written in a non-formal and formal way. Further, they may be proficient in oral language but possess considerably weaker skills in reading and writing than native speakers."

With this proposed working definition of advanced CHL learners, let's review the past research on CHL learners.

2.3 Studies about Chinese heritage language learners

A study of advanced-level Japanese language learners concluded that: "A typical advanced-level Japanese language class in the United States is a mix of learners with different learning backgrounds, including heritage learners, pure classroom-instructed learners, those who learned Japanese naturalistically, and those who have mixed learning experience. It is important to ascertain whether all of these learners have similar instructional needs as they move toward a higher level of language proficiency…." (Kanno, Hasegawa, Ikeda, Ito, and Long, 2008). From my on-line research about courses settings in different Chinese Programs at numerous universities in the USA, CHL teaching faces the same situation. The current study is aims to learn acquisition characteristics of CHL learners with regard to LE, this study's results will help educators design activities and classes that better reflect advanced CHL learners' needs. In order to know how we can make improvements in CHL teaching, this chapter explores the history development in the literature. Past studies helped inform the design of the current study and identify how this study can make a small contribution in this area.

Compared with other heritage languages, Chinese has its own "specifications" (He 2008). CHL learners need "to negotiate the use of heritage language in its standard dialect forms" (Hornberger & Wang 2008). China consists of 56 minorities, which use seven major language groups, namely: Wu, Xiang, Gan, Min, Cantonese, Hakka, and Mandarin (Chao 1968, Norman 1988, Chen 1999). Mandarin is the dialect used by the majority of the people. Mandarin is based on Beijing dialect, which spread from the north to the south due to the economic and political issues. Mandarin also known as official language commonly used in China mainland, Taiwan and Singapore. As for the official

written language, simplified characters are used in China mainland and traditional

Chinese characters in Taiwan (Norman 1988, Chen 1999). In the current study, the

research area is focus on the Mandarin Chinese and simplified characters used in China

mainland.

For CHL learners, there are multiple possibilities when study Chinese. HE's

research found the following possibilities: "If mandarin is the learner's home dialect or is

comprehensible to home dialect, classroom script is the same or different as home script,

or even no literacy in Chinese. If mandarin is unintelligible to home dialect, classroom

script is the same as home script or different from home script, or even no literacy in

Chinese" (He 2008, p.3). This status makes CHL learning even more complex than other

heritage languages. What's more, there are always other related facts, such as identity

issues, motivation factors, and culture shocks that will affect language learning and

teaching. The current research can only cover a small number of many issues in this area

by starting to investigate the acquisition characteristics of the aspect marker le in

Mandarin Chinese.

As we stated above researche about CHL learners began more recently than other

heritage language learners (McGinnis 2008). As McGinnis stated: "The development of

the field of Chinese as a Heritage Language (CHL) has been nothing short of astounding.

(Foreword). Due to the limited time, the literature about CHL is considerably small.

Studies of CHL learners started with Christensen and Wu in 1993 and Wang further

developed them in 1996. Studies related to CHL learners become more and more popular

recently (Tao 2006, Xiao 2006). CHL has been taught and learned as long as the Chinese

American experiences itself (Chang 2003, Chao 1997). The CHL group is different from

other leaners of Chinese, and has its own characteristics (He 2008). Most of the research focused on literacy issues (Keiko, Zhang & Yang, 2008, Tse 2001, Xiao 2006) or deal with character issues (Ke 1998, Tse 2001, Shen 2003, Chu 2004). There are other studies that mainly explored CHL learners' learning motivation (Lu & Li 2008, Yang 2003, Comanaru & Noels 2009, Wen 1997,1999, 2011), or their living and study community or identity issues (He 1997, 2001, 2003, 2006, 2008, Weger-Guntharp 2006, Comanaru & Noels 2009, Wong & Xiao 2010). There are limited numbers related to CHL language abilities. A sociologist, Chow (2001), conducted a retrospective study of Canadian university students' experience as HL learners, focusing on Chinese-Canadians in particular; he reported a negative correlation between the knowledge of Chinese and subjects' age and date of arrival as immigrants. Duff (2008) commented that: "The program was not successful in developing students' oral and written HL proficiency." Like other heritage language learners, CHL learners' initial oral and aural proficiency distinguishes them from students of Chinese as a foreign language (Montrul 2008). Studies have shown that CHL learners' written language might have no advantage compared with second language learners. Based on CHL learners' oral and aural proficiencies, the current study adopts written language as the medium to investigate advanced CHL learners acquisition characteristics.

A handful of studies are due with the acquisition of grammar abilities. For instance, Li (1990) investigated the aspect marker in childhood Mandarin. Li & Bowerman (1998) and Li & Shirai (2000) investigated the acquisition of the aspect marker in Chinese. Ming and Tao (2008) tried to develop a CHL corpus and conducted a

case study on the use of the perfective marker "LE"[1] among the elementary Chinese classes known as Chinese 1A, 2A, and 3A at a west coast university. Jia & Bayley (2008) did research about the acquisition of the perfective marker[2] among children and adolescents. Most research about CHL focused on the K-12 students, whose written Chinese is either at the novice or immediate level (Koda, Zhang & Yang 2008, Xiao 2008). These studies help instructors have a better understanding of K-12 level CHL learners. However, few researches are studying about the advanced CHL learners. There is a broad unexplored area in advanced CHL learners.

In addition, bilingual CHL learners process Chinese differently than CFL learners. According to Chomsky's (1972) idea about Spanish heritage speakers, this difference in processing results from the fact that heritage speakers have been exposed to Chinese since early childhood. Parodi's (2008) research about Spanish heritage learners showed that in terms of grammar, "The process of learning grammar is different for students of Spanish as a Second Language than it is for heritage speakers" (Brinton, Lagan & Bauckus 2008, p.211). These finding have motivated the current study to determine the differences between CHL and CFL learners in the acquisition of the aspect marker LE in Chinese Mandarin.

Faced a situation with only limited studies about aspect markers among advanced CHL learners, this study engages the question: What are the characteristics of advanced CHL learners? Li's (2005) survey of HL learners of Chinese at a Western Canadian university revealed that: "although HL learners are by no means homogeneous in terms of their language and literacy profiles, on the whole they do share common features,

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1 Ming and Tao (2008) refer "le" as a perfective marker in their studies.
2 Jia & Bayley (2008) refers le as a perfective marker in their studies.

particularly the need to work on advanced aspects of language, pragmatics and literacy."

Other studies showed that Russian aspect markers are notoriously difficult and even for

monolingual learners it takes time to learn (Gvozdev 1961, Slobin 1966, Stoll 2001),

Chinese aspect markers share the same intractability with other languages' aspects. LE is

one of the trickiest aspect markers, including "zhe, guo, zai" (Zhao 1997, Sun 1993,

Wang 1997, Wen 1997, Sun 2000, Duff and Li 2002). To try to discover advanced CHL

learners' acquisition characteristics related to grammar, the current study focused on the

aspect marker "LE 了" in Chinese Mandarin. Let's review the linguistic facts of LE and

its related studies.

2.4 Linguistic facts of "LE 了"

LE is one of the most important particles in the Chinese language. Due to its

complexity in Mandarin Chinese, scholars have hotly debated about it (Chao 1968,

Rohsenow 1978, Li and Thompson 1981, Zhu 1982, Shi 1988, 1990, Huang 1989, Ross

1995, 2002, Smith 1997, Sybesma 1997, 1999, Zhang 2000, Lin 2003). There are three

main arguments concerning LE in the literature: whether LE is an aspect marker (For

example: 他来了 (tā lái LE, he come le) can mean "He comes/ he has come/ he is

coming" in different contexts) or a tense marker (such as 做完了, do finish LE, this LE

indicates completion of the action) ; whether it is a perfective marker (他打了球, he

play LE ball, this LE indicates this action has already been done) or a 'relias' marker; and

because of LE's different functions in the sentence, whether there is one LE, or two, or

three, or four, in Mandarin Chinese.

In the discussion of whether LE is an aspect marker or a tense marker, some scholars proposed that LE plays an important role in showing the tense in Chinese (Chu 1976, Tai 1984). But sometimes LE does not indicate the tense. Li and Thompson (1981) stated that: "LE expresses various aspect rather than tense relations, and are after called aspect particles or markers." The notion of treating LE as an aspect marker is widely accepted among scholars. This paper agrees that LE is an aspect marker for the reason that sometimes LE will not indicate tense. For example: 他来了 (tā lái LE, he come le) can mean "He comes/ he has come/ he is coming" in different contexts.

In considering whether LE is a perfective marker or a "relias" marker, some studies proposed that LE after a verb (such as 做完了, do finish LE, this LE indicates completion of the action) shows its perfective meaning in the sentence (Lü 1980, Li and Thompson 1981, Smith 1991, Ross 1995, Smith 1997, Wang 1985). However, Chu and Chang (1987) suggested that LE is a marker of 'relias' rather than perfective aspect. Later, other scholars agreed that LE is not a perfective marker, but a realization marker (Liu 1988, Sybesma 1997, 1999, Lin 2003). The current study believes that it is hard to decide whether LE is a perfective marker or a "relias" marker due to its variance under different circumstances. This undecided definition of LE is partially because of the focus only on pragmatic analysis. For the acquisition of LE, the semantic function will do good for language learners (Zhao 1997, Punyakanok, Roth & Yih 2008).

Another hot debate is how many LE exist in Mandarin Chinese. Lü (1980) proposed two LE in Xiandai Hanyu babai ci. LE after the verb is LE1 (吃了 eat LE) and LE at the end of the sentence is LE2 (我吃了 I eat LE) . Later on, researchers continued to dispute which is LE0, LE1, LE2, which is LE1+LE2 or even LE3 and LE4. Jin (1998)

and Liu (2004) argued there should be four LE according to its location in the sentence. Zhang (2003) proposed there should be only one LE due to its complexity, it is hard to decided how many LE exist in grammar. The current study contends that LE has different indications and functions in different language environments (Thompson 1968, Rohsenow 1976, 1978, Li 1990).

As a difficult aspect marker, the acquisition of LE will involve different issues. A complete acquisition of a grammar point should include three factors: syntactic structure analysis, semantic analysis and pragmatic analysis. Several studies have found that "in parsing temporarily ambiguous sentences children rely primarily on structural information while ignoring lexical–semantic and contextual cues" (Felser, Marinis & Clahsen 2003). This study will not focus on the unclear demarcation of LE in the literature since it is possibly due to the emphasis on pragmatic analysis or sentence structure analysis, but neglects the semantic functions of LE (Wen 1995,1997, Zhao 1997). LE's semantic functions are distinguished by the language context, and studies have proposed the following indications: completion, realization, change of state, inchoativity, current relevant state, subjective change, relative anteriority, etc. (Chao 1968, Li and Thompson 1981, Zhu 1982, Ross 1995, Sybesma 1999, Lin 2003, Shi 1990, Huang and Davis 1989, Yip and Don 2016).

This study suggests that focusing on the semantic functions of LE is the best way for CFL learners to acquire LE. Furthermore, in order to give CFL learners a clear idea of LE's functions, we need to emphasize on the basic functions. Since common semantic functions in the language contexts are always connected with the content, that related to, this study refers to LE according to its location in the sentence. LE after a verb or

adjective (verb- LE, adjective- LE) is referred to as LE1, and LE at the end of the

sentence as LE2 (sentence final LE). Let's see what the basic semantic functions are of

LE in commonly used dictionaries.

A dictionary is the primary reference for CFL learners, and the commonly used

dictionaries emphasize two basic functions of LE. In the dictionary Xiandai hanyu babai

ci, edited by Lü (1980, pp.314-319). There are two LE: one LE is after the verb,

indicating completion. Another LE is the sentence final LE, indicating change of state.

This change can refer to the changes that have already happened (means completion of

the state) or will happen later, or is starting to change. Other dictionaries agree with these

two basic functions of LE. Including: ABC Chinese-English Dictionary, edited by John

DeFrancis (1996, p.362), The contemporary Chinese Dictionary (Chinese-English

Edition), chief edited by Chen Kai (2002, p.11160), MACMILLAN-FITRP Chinese

Character Dictionary, chief edited by Zheng Shupu (2010, p.458) and Xinhua Dictionary

with English Translation, chief edited by Yao Naiqiang (2000, p.384). This study adopts

Lü's (1980) categorizations of LE in Xiandai Hanyu babai ci because of its detailed

analysis and considerable examples in different language contexts. Moreover, Most

Chinese linguists accept this division of LE and two LE theory is accepted and used by

most textbooks for Heritage language learners and second language learners of Chinese.

It is a consensus among the Chinese language teachers.

2.5 Past studies on LE's acquisition

Past studies showed that LE is one of the most difficulty aspect markers for

Chinese as a foreign language (CFL) learner to learn (Zhao 1997, Sun 1993, Wang 1997,

Wen 1997, Sun 2000). Duff and Li (2002) stated that "The perfective LE represents as a

component of Mandarin grammar that poses many challenges for Mandarin second language learners, language teachers and linguists."

Some studies are about the acquisition order of LE1 and LE2. Wen (1995) did research among English-speaking college students and found that the participants in her study acquired the perfective aspect marker LE before the sentence final LE. Wen (1997) investigated the acquisition of LE and the other two aspect markers, "guo" and "zhe" among university English-speaking learners. Wen found that LE was acquired first, and then the aspect marker "zhe", while Yang, Huang & Sun (1999) had different result: LE was acquired later than the aspect marker "zhe". Sun (1999) conducted research among CFL leaners and found out if the aspect markers indicate tense, they can be acquired early. Zhao (1997) worked on the process of acquisition of LE and found clearly stated semantic functions of LE will improve learners' acquiring accuracy. Sun (1993) investigated the possible factor that will affects the acquisition order of LE.

Other studies compare the Chinese aspect marker LE with other languages. Zhao & Shen (1984) investigated the corresponding expression of the aspect marker LE in English. Pan (2003) compared LE with aspect markers in English and found that LE is a 'relias' marker rather than a perfective marker. Sun & Ding (2004) find that LE can be translated into all tenses in English. There are studies comparing the aspect marker LE to Russian aspect markers and Japanese aspect markers. (Wang 2002, Zhang 2004, Gou 1988, Li 2005, Jia 2005).

Some studies focused on the error-types analysis of acquisition. Sun (1993) investigated CFL's error types. Zhao's (1997) case study found the overuse and misuse of LE. Li (1997) analyzed the error-types of LE, "zhe", and "guo" among CFL students.

Later researchers conducted many corpus studies about LE's error-types in CFL learners with different native languages, for instance, English, Korean, Tai, Japanese, Russian and others CFL learners (Wang 2016, Zhang 2014, Wen 2008, Xue 2003, Han 2003, Gao 2005, Jie 2001, Xin 2001, Wang 1995). Based on the error-types analysis, Yang (2007) did research on the implementation of CFL teaching principles among Indonesia CHL learning LE. Yang found that the error-types among Indonesian CHL learners were not due to syntax structure, but due to the fact that its sematic function is influenced by other factors in the sentence.

From the above review in the literature, we can see that most of research was done in the target Chinese language background among CFL learners, or corpus studies comparing LE with aspect markers in other languages. Few practical studies concerned learners with backgrounds in English or other languages. Almost no research has been done about acquisition of LE among advanced CHL learners. The current research will be done with English as a dominant language environment. There are very limited related studies about the acquisition characteristics of LE in CHL learners, and those were done at the K-12 level (Li 1990, Li & Bowerman 1998, Li & Shirai 2000, Jia & Bayley 2008, Ming & Tao 2008). Montrul (2008) suggested that heritage learners share similarities with second-language learners, here we are specifically concerned with CHL learners and CFL learners. This study intended to learn whether past LE research results apply to advanced CHL learners. Furthermore, if there are differences between CHL and CFL learners, we will determine the differences between them in terms of the acquisition of aspect marker LE.

Zhao's (1997) research showed that if the language instructor communicates the detailed meaning of LE to CFL students, their production accuracy will improve significantly. Therefore, the current study will focus on LE's basic functions, namely, indicating completion and change of state. Since LE can indicate completion of an action after a verb or at the end of the sentence, the study will try to determine whether CHL learners can understand how LE's semantic functions affect the meaning of the sentence. As we noted above, we will refer to verb-le and adjective-le as LE1, and sentential final LE as LE2.

CHAPTER 3

METHODOLOTY

We reviewed the development of research in the heritage language field, including heritage education, we also reviewed related CHL research, linguistic facts of the aspect marker le and past acquisition studies concerning LE From the literature review, this study discovered that it is meaningful to develop acquisition studies among advanced CHL learners. Since past studies have shown that the aspect marker LE is difficult to acquire (see details in Chapter 2, 2.5), this study investigates the acquisition of this representative aspect marker. The following sections are included in this chapter: 1) design of the study; 2) research questions and hypothesis; 3) research subjects; 4) instrument; 5) procedure.

3.1 Design of the study

This study is designed to determine the acquisition characteristics of advanced CHL learners with regard to the aspect marker le in Chinese Mandarin. It differs from past studies in the level of the research subjects and the chosen linguistic item:

1) First, this study is about advanced CHL learners, while most of the past studies are about K-12 learners (Li 1990, Li & Bowerman 1998, Li & Shirai 2000, Jia & Bayley 2008, Koda, Zhang & Yang 2008).

2)Second, this study concerns the aspect marker le, while most of the past studies deal with motivation, identity issues or literacy issues, and few are about the acquisition of grammar aspects (Li 1990, Li & Bowerman 1998, Li & Shirai 2000, Jia & Bayley 2008, Koda, Zhang & Yang 2008, Xiao 2008, Keiko, Zhang & Yang, 2008, Tse 2001,

Xiao 2006, Ke 1998, Tse 2001, Shen 2003, Chu 2004, Lu & Li 2008, Yang 2003, Comanaru & Noels 2009, Wen 1997,1999, 2011, He 1997, 2001, 2003, 2006, 2008, Weger-Guntharp 2006, Comanaru & Noels 2009, Wong & Xiao 2010).

3)Third, whereas most of the acquisition research about LE were done targets learners with a Chinese language background (Zhao 1997, Sun 1993, Wang 1997, Wen 1997, Sun 2000, Wang 2002, Zhang 2004, Gou 1988, Li 2005, Jia 2005, Wang 2016, Zhang 2014, Wen 2008, Xue 2003, Han 2003, Gao 2005, Jie 2001, Xin 2001, Wang 1995), this will be a comparative study in an English-dominant language environment.

4)Moreover, past studies usually use a single research group (Zhao 1997, Sun 1993, Wang 1997, Wen 1997). There is one pilot study by Zhang (2014) about the implicit knowledge of compound sentences among three different groups of research subjects. Li, Zhang & Taguchi (2017) investigated the pragmatic competence of CHL learners in the use of three Chinese-specific mitigation devices by comparing CHL learners with native speakers and Chinese as a foreign language learner. This study adopts a comparative analysis that will compare CHL learners with CFL learners and native Chinese speakers.

This study employs one questionnaire survey designed to collect data. By analyzing the research data, we expect to learn the acquisition characteristics of advanced CHL learners concerning the aspect marker LE. The research questionnaire includes three parts that survey participants' comprehension ability, their production ability and whether their English ability affects the comprehension ability of the aspect marker LE. We introduce the detailed information of research subjects first, then research questions, followed by details of the questionnaire design.

3.2 Subjects

We defined advanced CHL learners from a linguistic perspective as follows: "An advanced CHL learner is someone who is raised in a home or an institution with at least one native Chinese speaker where Chinese is both spoken and written in a non-formal and formal way. Further, they may be proficient in oral language but possess considerably weaker skills in reading and writing than native speakers." All the advanced CHL learners in this research study have near native-like spoken language abilities and have advanced level reading and written language abilities. All the participants are placed in the advanced level class in their Chinese program, and the participants' instructors confirmed that they all reached the advanced level in terms of their language abilities. Due to limitations, it was not possible to have all the participants take the placement test at the same time.

This study includes three groups of participants. The total number of participants is 198. They were from five universities: three universities are in the United States and two universities are in China mainland. The CHL learners' group is the experimental group; the CFL learners and native Chinese speakers are control groups. The CHL group includes students who are studying Chinese in an English-dominant background in the United States and those in a target Chinese language background in China mainland, CHL students in China are international students who are pursuing their college study in China.

The CHL learners in an English background and the CFL learners are all from the universities in the United States. They are junior or senior undergraduate students who are learning Chinese in a Chinese program. They are studying Chinese as their major,

their minor or just due to an interest in the Chinese language. Based on the number of semesters they had studied Mandarin Chinese at the university or their performance on a placement test when enrolling in the class. They are considered advanced level Chinese language learners. Among them, 24 are CFL learners and 22 are CHL learners. All the questionnaires collected among them are effective.

Ninety-one CHL learners in China mainland took part in the survey. They all come from Jinan University, Guangdong, China. They were all in the second semester of their third year of learning Chinese in Spring 2018. Their placement showed that they reached the advanced level. The placement test is the new HSK testing material, which showed they reached level 6 or even higher in Chinese language abilities. After they passed the placement test, they had two weeks to adapt in the advanced level classes, if they survived in the advanced level, they remained as advanced level students. Those who could not adapt were placed in lower-level classes. Most of these CHL learners come from Southeast Asian countries, including Thailand, Indonesia, the Philippines, Laos, Burma, and Malaysia.

Due to language attrition (Seliger & Vago 1991, Montrul 2008), Chinese native speakers who resided outside China might have their Chinese language abilities affected by English or other languages. To make sure the native Chinese speakers survey data reflect the daily use of Mandarin in China, all the native Chinese speakers were recruited from Linyi University, Shandong, China. Sixty-one junior undergraduate students volunteered to take part in the survey. They all come from the northern parts of China. Including Beijing, Tianjin, Hebei, Jilin and Shandong. The location choice ensures that their home dialects belong to the northern official language, which would have little

influence on their Mandarin Chinese. Most of them are majoring in Business and

Economics. No participants major in Chinese, which ensure they will have natural daily

use judgement on the survey item with no specific Chinese language knowledge

interfering. They all have passed the College English Test Band 4 (CET-4), the English

standard test, which means all the participants have enough English ability to finish the

survey.

Table 3.1 Number of Subjects Who Participant in the Survey

	Numbers
CHL in the USA	22
CFL in the USA	24
CHL in China	91
NS in China	61
Total	198

3.3 Research questions and hypothesis

3.3.1 Research questions

As the literature review revealed, very few researchers have empirically compared

CHL learners with CFL learners and native Chinese speakers to delve deeply into the

differences between these three groups to distinguish the acquisition characteristics of

advanced level CHL learners. To fill these research gaps, this study investigates the

following questions:

1, What are the differences between advanced CHL and CFL learners with regard

to the acquisition of "LE 了"?

2, What are the differences between advanced CHL learners and native Chinese

speakers regarding "LE 了"?

3, What are the differences between advanced CHL learners who are studying in an English-dominant background and those learners who are studying in China with Chinese language background concerning "LE 了"?

In order to answer the above questions, a questionnaire survey has been designed. This questionnaire surveys three aspects of the subjects' language abilities: the comprehension ability of understanding LE in different language contexts; the production ability of using LE in various language situations; and the acceptability of different sentences to discover whether English ability affects the comprehension ability of the aspect marker LE. Advanced CHL and CFL learners and Chinese native speakers completed the survey questions.

3.3.2 Hypothesis

Past studies have shown that there are differences between second language learners and heritage language learners (Campbell & Rosenthal 2000, Cho 1999, O'Grady 1997). Although these studies are not directly addressing differences among CHL learners, they demonstrated about the differences and similarities between CHL learners and CFL learners. Au et al.'s (2002) studies showed out that "on a variety of morphosyntactic properties have shown that adult heritage speakers and typical second language learners are not very different from each other" (Montrul, 2008). Studies that compared Spanish heritage speakers and second language learners in terms of the Spanish aspectual system showed that the advanced second language learners and heritage speakers did not differ statistically from each other (Montrul 2002, Montrul & Slabakova 2003). Bruhn de Garavito's (2002) investigation of syntactic knowledge of verb

movement showed that age of acquisition does not provide an advantage for heritage speakers: those second language learners who started to learn the language in a formal setting shared the same advantages as heritage language learners. O'Grady, Lee and Choo (2001) investigated Korean heritage speakers and second language learners and the result found no obvious differences between them. O'Grady (2001) concluded that in terms of "making use of overt case markers to interpret complex sentences in Korean, heritage Korean speakers do not appear to have advantage over second language learners." Montrul (2008) stated: "The simplified grammatical systems of heritage speakers have the signatures of native speakers' grammars acquired within the critical period, since core aspects of the language are retained while other complexities are lost or remain underdeveloped due to reduced input conditions" (p. 206). This statement predicts that native Chinese speakers share similarities with CHL learners, because their grammatical acquisition ability was acquired in the early ages. Montrul (2008) made a concluded that:

> "…While the grammars of second language speakers still fall short of native-speaker performance, starting early with the acquisition of a language in a bilingual environment does not automatically bring an added advantage to heritage speakers in some aspects of inflectional morphology and syntax, even if input is more or less available." (p. 216)

Montrul further proposed that: "In many respects, heritage language acquisition has characteristics of both first language and second language acquisition." Below is the table summarized by Montrul (2008, p. 217).

From the summarized information of Montrul (2008) in Table 3.2, we propose a hypothesis for research question:

Table 3.2 Characteristics of first language (L1), second language (L2) and heritage language acquisition

Factors		L1 acquisition	L2 acquisition
1, previous linguistic knowledge		none	L1 knowledge (fully developed)
2, Input	a, timing	early exposure (birth)	late exposure (after puberty)
	b, setting	naturalistic	naturalistic and instructed
	c, mode	aural	aural and written
	d, amount	abundant and frequent	varying (in amount and frequency)
	e, quality	linguistically carried and rich, contextually appropriate	contextually restricted, less variety of structures/ vocabulary, input from other non-native speakers.
	f. literacy	more complex structures and vocabulary continue to be acquired and reinforced after age 5 when metalinguistic skills develop	literate in the L1 and L2
3, personality and affective factors		irrelevant	relevant
4, target system	a, types of errors	developmental errors	developmental and transfer errors
	b, fossilization	does not occur	typical
	c, outcome	successful and complete	variable and typically incomplete

Note: Shaded cells represent the intersecting factors between L1 and L2 acquisition that characterize heritage language acquisition

What are the differences between advanced CHL learners and native Chinese speakers with regard to "LE 了"?

Because heritage language learners share similarities and differences with native speakers, we can predict the following differences between CHL learners and native Chinese speakers regarding the following three aspects of language abilities: 1) For comprehension ability of understanding le, CHL leaners and native speakers should have very similar outcome. The current study predicts that native Chinese speakers might have slightly higher comprehension accuracy rate than CHL learners because native speakers

have continuous exposure to the naturalistic language environment, while CHL learners are exposed to the English dominant language environment. 2) For production ability of using le, according to the similarities CHL learners and native speakers share, they might have similar outcomes of using le; however, if the acquisition environment differs too much after age five, there may be much heterogeneity of the production ability between these two groups. The current study predicts that CHL learners will have lower accuracy compared with native speakers because they are exposed to the English language environment and they have less chance to use Chinese in daily life. 3) The sentence acceptable survey task is designed to see whether English language has effects on CHL learners who are studying Chinese in the USA. The current study predicts the outcome of these two groups might have some similarities. But since CHL learners do not show their similarities in terms of "linguistically carried and rich, contextually appropriate" (Montrul 2008) with native speakers, this study predicts that native speakers will have a higher accuracy rate than CHL learners in the sentence acceptable survey part. Our analysis of the survey will test the accuracy of these predictions.

In addition to the above research result in Table 3.2, Montrul's (2008) study about incomplete first and second language acquisition in adults indicates the linguistic advantages of heritage speakers over second language learners by grammatical module. The following table shows the detailed comparison result (Montrul 2008, p. 247, Table 3.3).

Table 3.3 Linguistic advantages of heritage speakers over second language learners by grammatical module

	Heritage speaker	Second language learners
phonology	advantage	
morphology	advantage in less metalinguistic tasks	advantage in more metalinguistic tasks
syntax	advantage	
lexical-semantics	advantage	
sentence processing (written and spoken)	advantage	

Based on the past studies, we have hypothesis for Research question:

What are the differences between advanced CHL and CFL learners with regard to the acquisition of "LE 了"?

Table 3.2 has shown that heritage speakers and second language learners all have fully developed first languages. For instance, the CHL learners and CFL learners in this study have all grown up in the English-dominant environment. CHL learners started as bilingual—their English and Chinese language abilities developed simultaneously, CFL learners have fully developed English language (Montrul 2008). This similarity raises the possibility that English might have similar effects on CHL learners and CFL learners, we can predict that these two groups of participants might have similar survey results in the acceptability judgement survey task.

Heritage speakers have obvious advantages in the grammatical module study (Table 3.3). However, in the use of the target language-Chinese-heritage language speakers and second language learners vary in amount and frequency. For this reason, the production ability of CHL learners and CFL learners cannot be measured accurately. And thus, is hard to predict. Since the particle le is mostly used in spoken Chinese (Li &

Thompson 1981), based on the working definition we have for this study, advanced CHL learners are near native-like in terms of speaking and listening language abilities (Montrul 2008). The current study predicts that CHL learners should have a higher accuracy rate than CFL learners. As for the influence of English, since both CHL and CFL are in the English dominant environment, the current study predicts that the outcome in the acceptable survey part should be very similar.

There are no comparison studies about CHL learners in two different language learning backgrounds. It is hard to predict the nature of their differences. However, since those who studied in the target Chinese language environment have more exposure to the Chinese language, this study predicts that CHL learners learning in China might have higher accuracy in both comprehension and production parts. While in the acceptable survey part, since CHLCN learners (CHL learners who come to China for college and are studying Chinese) are learning in Chinese language dominant environment, the English should have less influence on CHLCN learners than CHLUSA learners (CHL learners in the United States) who are learning in the English dominant environment. We are going to find out the differences by analyzing the survey data. The following table (Table 3.4) is the summary for the hypothesis.

Table 3.4 Hypothesis for research questions

	Comprehension ability	Production ability	English influence
Q1: CHL vs. CFL	CHL>CFL	CHL>CFL	CHL=CFL
Q2: CHL vs. NS	CHL<NS	CHL<NS or CHL=NS	CHL>NS
Q3, CHLUSA vs. CHLCN	CHLUSA<CHLCN	CHLUSA<CHLCN	CHLUSA>CHLCN

Note: Q means "research question"; ">" means "better" or "more"; "<" means "worse" or "less", "=" means "equal to" or "the same"

3.4 Instrument

The instrument used for this study consisted of a four-part questionnaire. This study was designed to determine the acquisition characteristics of advanced CHL learners in regard to the comprehension and production of the aspect marker le. This is a comparative study. By analyzing the language comprehension ability, production ability and acceptability judgement task, we will identify the actual differences between CHL learners and other groups of learners. The first part of the questionnaire investigates the comprehension of le in different language situations in single sentences. The second part examines comprehension ability when the same sentence with le appears in different conversations. The third part evaluates the production ability of using le in different language contexts. The fourth part is an acceptability judgement task, which intended to see whether CHL students' Chinese language ability of comprehend le is affected by English as their first language.

To make sure that no other factors affect the accuracy of the survey results, the questionnaire is designed to take the following into consideration: First, all the characters and vocabulary used in the questionnaire are included in the teaching syllabus, which means the survey result will not be affected by the difficulty of the chosen characters and vocabularies.

Furthermore, the selected experimental Chinese sentences were reviewed by five Chinese native speakers to make sure these sentences are natural and commonly used. There were two previewers from the Chinese department at University of Massachusetts Amherst, in order to ensure from a linguistics perspective these sentences are worth

including in the survey and are all accurate: one is a Chinese professor, and one is a Chinese major M.A. student. Another three previewers lived in China and have never lived in other countries. They have almost no language attrition (Seliger & Vago 1991): one is a worker, one is a high school student, and one is a management major college student. They all agreed on the naturalness and accuracy of the selected Chinese sentences. The three English answers were examined by five native English speakers to make sure they are natural and accurate enough: A major in Linguistics at the University of Massachusetts, Amherst, a major in Chinese, a Computer Science PHD candidate, an English major undergraduate student, and a cashier in a mall. These previewers made sure the answers are not misleading nor have vague meanings.

3.4.1 Questionnaire part one

In the literature review part, we stated that this study will focus on the basic functions of LE. We investigate the participants' comprehension ability in the first part of the questionnaire: part one includes ten survey items. It is most important to choose the proper survey sentence containing LE. Based on past studies about the acquisition of the aspect marker LE (Zhao & Shen 1984, Zhao 1997, Li 1990, Li & Bowerman 1998, Li & Shirai 2000 Duff & Li 2002, Wen 1995, 1997, Sun 1993, Wen 2008, Xue 2003, Han 2003, Gao 2005, Jie 2001, Xin 2001, Wang 1995, Wang 2002, Zhang 2004, Gou 1988, Li 2005, Jia 2005, Jia & Bayley 2008, Ming & Tao 2008, Wang 2016, Zhang 2014), in addition to studies of the native-like language abilities of advanced CHL learners (Montrul 2008), this study is designed two basic semantic functions of LE to serve survey functions in this part.

The first five survey items relate to LE's basic function that can indicate "change of state." These five sentences have LE in different words combinations, but all contain the sentence final le. Levinson (1983) states that: "…in discourse deixis, there are many words and phrases in English, and no doubt most languages, that indicate the relationship between an utterance and the prior discourse…What they seem to do is indicate, often in very complex ways, just how the utterance that contains them is a response to, or a continuation of, some portion of the prior discourse" (pp.87-88). This shows us how important it is that the combination changes the sematic function of LE in different language contexts. This study will contain the following five commonly used combinations of LE with other words (Lü 1980): 1) LE combined with an auxiliary verb: "我妹妹会开车了(wǒ mèimei huì kāi chē LE, I sister can drive le); 2) LE combined with an adjective: "两年不见，她漂亮了(liǎngnián bújiàn, tā piàoliang LE, two year no see, she beautiful LE)"; 3) LE used after negation: "他不想去中国了 (tā bùxiǎng qù zhōngguó LE, he no want go China LE)"; 4) LE used after a noun: "妈妈对小王说：

"大学生了，还这么不懂事? (mama duì xiǎowáng shuō:'dàxuésheng LE hái nàme bù dǒngshì'Mom to Xiaowang speak : "big student le, still this no understand thing")"; and 5) LE used after a verb: "王朋对李友说: '过马路了，当心汽车'.(wángpéng duì lǐyǒu shuō:'guò mǎlù LE，dāngxīn qìchē' Wang Peng to Li You speak: 'pass road LE, be careful car')."

When LE is used to indicate "completion," it usually appears along with a dynamic verb (Lü 1980, Li & Thompson 1981), for example: "我看了书" (I look LE

book) or "我到了北京" (I arrive LE Beijing). But this basic structure of the verb plus LE presents no difficulty for advanced CHL leaners who already have near native like language abilities (Montrul 2008). Therefore, this study uses a comparative method to determine the subjects' ability to understand LE's completion function. Five survey items address this target. We employ two groups of very similar sentences: the first group contains only LE 1(verb LE), "王朋下了课就去打球" (Wang Peng end LE class then go play basketball)and "李友学了三年中文."(Li You learn LE three year Chinese) These are compared with sentences that have both L1 (verb LE) and Le2 (sentence final LE) "王朋下了课就去打球了" (Wang Peng end LE class then go play basketball LE) and "李友学了三年中文了" (Li You learn LE three year Chinese LE) to test whether subjects can understand the nuance of meaning in these sentences due to differences in the use of LE. Taking into consideration the fact that LE at the end of the sentence usually indicates change of state, we chose the sentence "我吃饭了，什么都吃不下" (I eat fan LE, nothing all eat at all) to test whether the subject knows it is indicating completion instead.

All ten survey items are in multiple choice survey format. Each Chinese sentence has three corresponding answers in English; only one English sentence accurately reflects the meaning of the Chinese sentence. These English answers are based on the research results of past comparative studies of the aspect marker LE and tenses in English, and other related error types of LE among CFL learners (Sun 1993, Zhao 1997, Li 1997, Wang 2016, Zhang 2014, Wen 2008, Xue 2003, Han 2003, Gao 2005, Jie 2001, Xin 2001, Wang 1995). We offered three similar answers in English with slight changes in

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meaning to see whether research subjects could choose the sentence that best reflects the meaning of the Chinese sentence. For example：他不想去中国了. a) He wanted to go to China before. b) He didn't want to go to China before. c) He wants to go to China now.

All these survey items are shuffled in the investigating questionnaire. Participants need to finish all the survey items in class or in their instructor's office hours.

3.4.2 Questionnaire part two

The second part of the questionnaire tests whether research subjects can distinguish subtle nuances of semantic function by using the same sentence with LE in different conversation contexts. In this part, the verb final LE and the sentence final LE coincide, which means that LE has both semantic functions of indicating change of state and completion if LE used in no context. In order to make sure the selected sentences are effective enough; this study adapted the sentence "他来了 He + come + the aspect marker LE." from Duff and Li's (2002) paper "The Acquisition and Use of Perfective Aspect in Mandarin." Duff and Li noted that "他来了" in different language contexts indicates different semantic meanings. We adapted the sentence here to serve the current study. We designed four scenarios and each one contains the sentence "他来了". We asked the same questions for the four scenarios and required the research subjects to read the dialogue and choose the best answers for the questions. This part is also in a multiple-choice survey format. For example: 王朋："高文中来了**吗**？"李友："你看！他来了！"(Wang Peng: Gao Wenzhong come LE ma? Li You: You look! He come LE!")Q: Has he come? a) He came. b) He comes. c) I don't know.

3.4.3 Questionnaire part three

The third part of the questionnaire surveys the subjects' production abilities of using LE and possible grammar knowledge when they are using LE. It contains 11 survey items. It is in a fill-in-the-blank survey format. Research subjects fill the blank with LE if they think it is needed. Among these 11 survey items, 10 are single sentences, and 1 is a short paragraph.

We devised five situations of using LE in the sentences. To make the survey item well balanced, we designed two items for each situation:

1) LE (LE 1 or LE 2 or LE 1 and LE 2) is required. We designed two sentences in which LE performs two different semantic functions. One indicates change of state: 小王跟小李红【】脸【】 （Little Wang and Little Li red []face[]）, the other indicates

completion : 经过三年的努力，他成为【】作家【】(after three year de hardworking, he become [] writer []). Here subjects can either use LE1 or LE2 in the blank.

2) LE 1 is required, LE 2 is optional. We designed two sentences here: One is a verb plus quantifier with le:飞机飞【】十个小时，终于到达北京【】(Airplane fly []

ten 'measure word: ge' hour, finally arrive Beijing). The other is two activities in series: 我做【】作业就回家【】(I do [] homework then go home[]).

3) LE 1 is optional, LE 2 is required. According to Lü's (1980) summary of the rules for using LE, we know that verb LE appears with sentence final LE in the same sentence usually indicate completion. We selected two sentences: 我在北京住【】三个

月【】，再过几天就搬走 (I Beijing live [] three months [], after several days then

move). And 大会结束【】好几天【】(conference finish [] several day [])to see subject's preference on LE 1 and LE 2.

4) LE 1 cannot be used. LE cannot be used after the model verb, which indicates no change or completion (Lü 1980, Li & Thompson 1981). We use the sentence: 我希望【】你来 (I hope you come). What's more, if the action in the sentence is a habitual action, it cannot be use with le. We adapted the item: "我去年每天早晨六点钟起【】床" (I last year everyday morning six o'clock get []bed).

5) LE 2 cannot be used. Based on Lü (1980), "才" (just) cannot be used with LE. We designed the following sentence: 我昨天晚上学习到 12 点才睡觉【】(I last night learn to twelve then sleep []). According to Li and Thompson (1981), LE is not a tense marker, but an aspect marker, because sometimes LE does indicate tense. Therefore, we use a future tense sentence here: 明天我吃完【】饭【】就去看电影【】(Tomorrow I eat all []food [] then go see movie) to see whether subjects will have right outcome.

There is a short paragraph of fill-in-the-blank entries. Yip and Don (2006) state: "The context in which the statement is made is extremely important, and, as we will see, the implications of a particular sentence can vary significantly depending on the situation in which it is used" (p.361). Past studies proved that the best way to do research concerning LE is in a context, not in a single sentence (Zhao 1996). Wen (1997) also suggested that the best way to learn LE is to put LE in a context. She also pointed out that: "advanced level learners are subject to syntactic and semantic restrictions on the use of LE. The accuracy of using LE in the single sentence improves with the development of

their language ability. However, the acquisition of LE in the paragraph has not yet been completed even when they reach to the advanced level." The current study adopted a short paragraph of survey items from Zhao's (1997) research. This short paragraph presents a life-related scenario, and it is well balance with five LE 1 and five LE 2. Due to the limitations of the current study, we only contain this short paragraph: 我在土耳其旅行的时候，对当地人为了价格而争论产生【】兴趣【】。一天，我到外地旅行【】，回来【】的时候，在汽车站两个司机同时向我走来【】。当我问【】他们车费是多少的时候，一个人回答说："坐我的车要六百元。"他的话刚说完【】，另一个就立即走上来【】说【】："我的车支付伍佰元。"一场争论就这样开始【】.

(When I was traveling in Turkey, I became [] interested in local people arguing over prices []. One day, I traveled out of town [], and when I came back [], two drivers came to me at the same time at the bus station []. When I asked [] how much their fare was, one person replied: "It costs six hundred yuan to take my car." As soon as he finished [], the other immediately walked up [] and said []:" My car pays five hundred yuan." This is how an argument began [])

All these survey items are shuffled in the investigating questionnaire. Participants need to finish all the survey items in class or in their instructor's office hours.

3.4.4 Questionnaire part four

The fourth part of the questionnaire consists of acceptability judgement tasks. It is designed to investigate the influence of English and participants grammar knowledge on

learning Chinese. Since LE can indicate tense sometimes, past studies have showed that CFL learners will use LE when a sentence indicate tense. Our survey contains 10 survey items that past studies have showed that CFL learners would made mistakes in those circumstances. Five of them are grammatically right, and five are wrong. Each sentence is adopted from the past studies.

Past studies showed that LE is rarely used after momentary verbs (Lü 1980, Li & Thompson 1981). Furthermore, if there are words in the sentence indicating a past time, CFL learners tend to use LE (Shen 2006, Yang 2007). Survey item "王冕七岁的时候死了父亲" (Wang Mian seven years dead father) is adopted from Shen's (2006) studies. In this sentence, LE is used after the verb "die". "die" is a momentary verb (Fang 1992), it is grammatical in Chinese, but, in English, it is ungrammatical to say: "*[3]Wang Mian at the age of seven dies his father." The sentence "他终于来了两个客户" (He finally come LE two customer) is also selected from Shen's (2006) studies. In English, there is no object after "come" (来 lai), it is ungrammatical to say that "*he finally comes two customers." We adopted another two survey items from Yang's (2007) studies: *但买了无数彩票后，我发现了中彩票的机会很少 (But buy many times lottery after, I find LE win lottery chance few); and *我第一次来到了中国学习，遇到了很多困难. (I first come LE China learn, meet many difficulties)In order to make the survey item well balanced,

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[3] The asterisk （*）indicates the following sentence is ungrammatical or illogic.

we adopted another survey item "他已经到美国三个月了" (He already arrive USA three months LE). This survey item considered the basic semantic function of LE that it can indicate completion. We also use "已经 (yijing, already)" in the sentence to indicate completion. However, "到(dao, arrive)" is a momentary verb, so, it is not correct to say that "*he has already arrived for three months" in English. The survey results will show participants' evaluation of these sentences.

Studies show that LE is rarely used with a habitual action (Lü 1980, Li & Thompson 1981). The survey item "*我去年天天留神了他的举动" (I last year everyday watch le his action) is adapted from Guo's (2002) study. Guo states that: "It is grammatically right to say that 'I have watched him every day' in English." However, it is ungrammatical to say "*我天天留神了他的举动" in Chinese. The current study's experimental group is advanced CHL learners; to make this sentence suitable for their language level, we adapted this sentence to "*我去年天天留神了他的举动". Because LE sometimes can indicate the past tense, we add "去年" (qunian, last year) to indicate the tense. But "天天(tiantian, everyday)" describes a daily habit, therefore, LE cannot be used in this sentence. For the same reason, we chose another survey item that contains a sentential LE "昨天她的孩子出生,她就是妈妈了."(Yesterday her child born, she is Mom LE) In this sentence, the sentential LE after the first minor sentence "昨天她的孩子出生" is optional, so, we omitted it here. In this sentence "昨天 (zuotian, yesterday)" indicates the time of past, this sentence can be translated to: "yesterday her child was

born, she became a Mom." In English, "yesterday her child was born" has a tense in it, but "昨天她的孩子出生" has no tense in it. We are going to see whether participants have a problem judging this sentence.

The Chinese language learners usually underuse the aspect marker LE to mark a peak event (Chang 1986, Li & Barley 2008). Ming & Tao (2008) found that underuse the aspect marker LE is also typical among elementary CHL learners. Past studies show that some mistakes in using the aspect mark LE that occurs at the beginner or intermediate levels will become better at the advanced level (Wen 1997). We use the survey item "*他今天早上喝一杯水和两杯咖啡" (He today morning drink one cup water and two cup coffee) to see whether the past research results apply to advanced level learners. Yang (2007) found that there is an overuse of LE among CHL students who come from Southeast Asia. Moreover, LE's semantic functions are always related to the language context (Zhao 1997, Levinson 1983), especially the verbs used before it (Wolfgang, Li and Hendriks 2000). To test this in our study group, we adopted another two survey items from Shen (2009). The first sentence "他喝了汤了，可是没喝完", means: "*he drank the soup, but he didn't finish it." There are two LE in this first minor sentence, including verb LE and sentence final LE; the sentence final LE usually indicates completion, but in this survey item, the latter half of the sentence indicates that "the soup hasn't finished", it is grammatically right in Chinese, but in this case, the act is not completed. The last survey item is "*他把汤喝了，可是没喝完". This sentence becomes complicated because of the preposition "把". If the sentence contains "把", it becomes a disposal sentence, which means one action is completed. In this survey item, it indicates "he

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finished drinking the soup"; but the latter part of this sentence means "he hasn't finished", so, it is incoherent. We will see the subject's judgement in the data analysis part.

All these survey items are shuffled in the investigating questionnaire. Participants need to finish all the survey items in class or in their instructor's office hours.

3.5 Procedure

We obtained IRB[4] approval from the University of Massachusetts Amherst, before conducting the survey. The questionnaire survey was administered during Spring 2018. We asked help from three universities in the United States near the University of Massachusetts. All the instructors helped us obtain the students' consent first: the students voluntarily chose to take part in the survey. We asked participants to finish the questionnaire in the class or in the office hours of their instructors. We wanted to make sure all the questionnaires were finished by students individually, without the help of others. The data were collected on the hard copy questionnaire first, then all the data were organized and categorized in Excel as an electronic data form. The data were analyzed using SPSS 20.0. Major statistical techniques used in this study include a) descriptive analysis of questionnaire results, b) a mixed ANOVA analysis, c) one-way between-subjects' ANOVA analysis, d) independent T-test analysis, and e) simple effect test.

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[4] "The Institutional Review Board (IRB) is a federally mandated committee which reviews all research involving human subjects. In accordance with the federal policy on the protection of human subjects, the University of Massachusetts Amherst is responsible for protecting the rights and welfare of human subjects of research conducted by, or under the supervision of, its faculty, staff and students." https://www.umass.edu/research/compliance/human-subjects-irb/irb

CHAPTER 4

DATA ANALYSIS AND RESULTS

We introduced the detailed research design in Chapter 3, including the research questions and hypotheses, the subjects, the instrument and the procedure. After conducting the survey, we collected and analyzed the data. This chapter includes the following sections: 1) data collection; 2) data analysis; and 3) results.

4.1 Data Collection

All the questionnaires were administered during class time or during the instructors' office hours to make sure that the survey results reflect the first response of the participants. The CHL group is the experimental group and the NS group and CFL group are served as contrast groups. The total number of participants is 198. Of these, 91 CHL learners in China mainland took part in the survey. After 9 were eliminated due to unfinished/unclear questionnaires[5], 82 effective questionnaires remain for this research. We collected 22 CHL learners' questionnaires in the United States and all of them were effective. In addition, 61 Chinese native speakers took part in the survey; 6 unfinished/unclear questionnaires were eliminated, so 55 effective questionnaires were left. Finally, 24 CFL learners finished the survey effectively. The total number of effective questionnaires are shown in Table 4 below.

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[5] The questionnaires were eliminated due to unfinished or unclear answers. For example, when students circled between A and B, we could not be sure which answer they chose. Our questionnaire contains four survey parts, and each part has an independent survey purpose. If participants didn't answer 50 percent of the total survey items in one part, we treat this part as unfinished and eliminate this questionnaire.

Table 4.1 The number of effective questionnaires

	Number
The experimental CHL group	104
The NS group	55
The CFL group	24
Total effective number	183

We graded the questionnaire based on its design. Part one is about comprehension of the aspect marker LE in a single sentence. There was only one correct answer among three choices for each survey item. If the participant chose the correct answer, we treat it as right, if not, then it is wrong. Part two is about comprehension of the aspect marker LE in a conversation situation. We also had only one correct answer among three choices for each scenario. It was treated as right only when the participant chose that answer. Part three is about the production of the aspect marker LE. There are 11 survey items. Ten survey items are in the form of single sentences, which incorporate five situations of using the aspect marker LE:

Situation one: LE is required. In this situation, if the participant used LE, no matter whether it was LE 1 (verb- LE) or LE 2 (sentence final- LE), the answers are considered correct.

Situation two: LE 1 is required. In this circumstance, only when the participant used LE 1, it is the correct answer. Some students used both LE1 and LE2 at the same time, which treated as a correct answer. If the participant used only LE2, and not LE1, then, the answer is wrong.

Situation three: LE2 is required. In this survey item, only when the participant used LE2 is the answer right. If student used LE1 and LE2 at the same time, the answer is also right. If the student used only LE1 without LE2, then, the answer is wrong.

Situation four: LE1 cannot be used. If the student used LE1 in the sentence, it is wrong.

Situation five: LE2 cannot be used. If the student used LE2 in the sentence, it is wrong. Survey item eleven is a short paragraph that serves as a production ability test. There are no strict right answers[6]. Therefore, we used different data analysis methods than for the 10 single sentences survey items. There are 10 blankets in this paragraph, and we named the blank in order as a, b, c, d, e, f, g, h, and i. We calculated percentage of participants who used le in each blank in each group.

Part four is an acceptability task. There are five grammatically correct survey items and five ungrammatical survey items. If the participant marked the right sentence as A for acceptable, then it is correct. If it was marked U for unacceptable, then it is wrong. Vice versa for the ungrammatical survey items.

The questionnaire we designed is not a balanced testing between survey items comprehension abilities and production abilities. Therefore, we didn't give exact scores to the right answers. We used percentages to grade all the survey items. For example, if there are 5 survey items and 4 of them are right, then we will grade this part as 80% right, recorded as 80% under the records of this participant for this part. We record all the parts in percentage individually. There are 182 effective questionnaires, so we have 182 entries

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[6] The using of le in a short paragraph is decided by the speakers' speaking scenarios and the expressed semantic meaning. It's more flexible than in a single sentence.

with four survey parts each recorded separately. Among them, we further divided the first part into two separate minor parts because the questionnaire is designed to examine the comprehension of the two basic semantic functions of the aspect marker le, namely, indicating change of state and completion.

After we finished collecting all the data, we proceeded with the analysis. The data was analyzed using SPSS 20.0. Major statistical techniques used in this study include a) descriptive analysis of questionnaire results, b) a mixed ANOVA analysis, c) one-way between-subjects' ANOVA analysis, d) independent T-test analysis, and e) simple effect test.

4.2 Data Analysis

We analyzed the data of the experimental group of CHL learners and the control groups of NS and CFL learners. We compared the collected data between these three groups. Furthermore, we have CHL learners from China mainland (hereafter designated as CHLCN) and CHL learners in the USA (hereafter designated as CHLUSA); since their language backgrounds are different, we further compared the data between these two CHL groups.

4.2.1 Data analysis of CHL, NS and CFL groups.

4.2.1.1 Comprehension Data analysis of CHL, NS and CFL

The three groups' data were analyzed by a mixed ANOVA. We first analyzed the first part of the questionnaire survey. This part examines comprehension of the aspect marker LE in a single sentence. We designed five survey items for the basic semantic

function of LE that indicates change of state, and the other five survey items are for the basic semantic function of LE that indicates completion. Table 4.2 showed the detailed data analysis result.

Table 4.2 Accuracy of comprehension data of LE with regard to the semantic function of "completion" and "change of state" (abbreviated as part 1) of CFL, NS and CHL groups (referred as three groups).

	Accuracy of comprehension part 1 (SD)		
	change of state	completion	Average
CFL	0.5667(0.2616)	0.7333(0.2334)	0.6500(0.2475)
NS	0.6437(0.1874)	0.6233(0.2541)	0.6335(0.4054)
CHL	0.6833(0.2321)	0.6333(0.2745)	0.6533(0.2533)
Average	0.6312(0.2270)	0.6633(0.2540)	
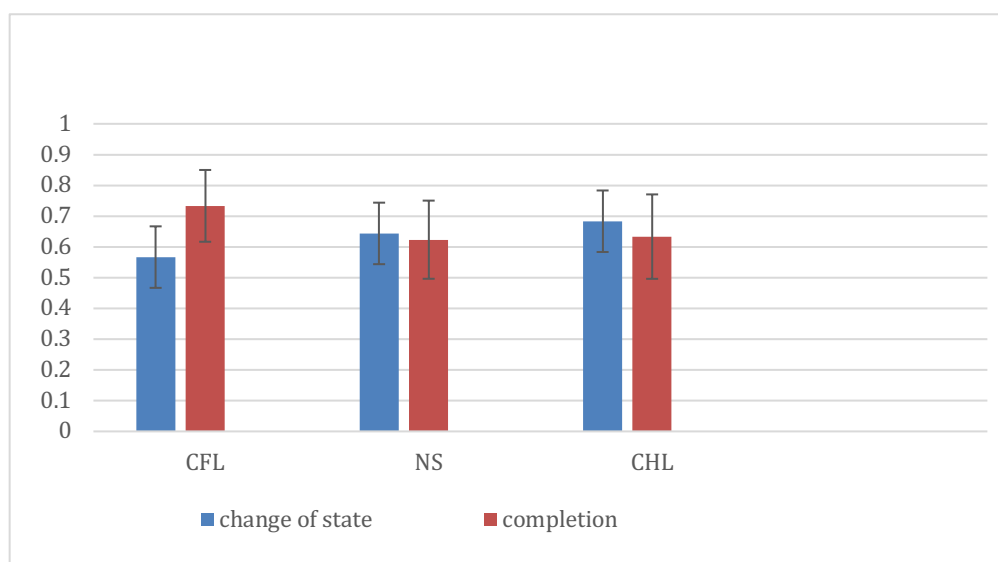
Figure 4.1 Accuracy of comprehension data of LE with regard to the semantic function of "completion" and "change of state" of CHL, NS and CFL groups.

In this part, a 3（three groups: CHL, NS, CFL）×2（two semantic functions: change of state, completion experimental design analysis of variance (ANOVA) was adopted. The mixed ANOVA reveals no significant main effect of language background

(F (2,69) = 0.009, p=0.991), and no significant difference in the main effect of LE's

two semantic functions (F(1,69)=1.126,p=0.292). However, there is a significant

interaction effect between language background and the type of LE (F (2,69) =5.034,

p=0.009<0.05). Table 4.2 revels that the CFL group performs better in the completion

test (0.7333) than the change of state part (0.5667). And the differences in these two parts

are quite obvious. However, the other two language backgrounds—the CHL group and

the NS group had different result. The NS group in change of state part with (0.6437)

accuracy, but (0.6233) accuracy in completion part. The CHL group in change of state

part with (0.6833) accuracy, but (0.6333) accuracy in completion part. These two groups

of participants did much better in the change of state part than in the comprehension part.

And the differences showed out in these two parts are less obvious than what showed in

the CHL group. The results indicate that the comprehension of the two basic semantic

functions of LE shows no significant difference between the CHL and NS and CFL

groups, and different language background shows no significant differences in

comprehension of the basic semantic functions of le. As shown in Table 4.2 above, the

mean indicates that the CHL learner (0.6533) is slightly better than the NS groups

(0.6335), and the CHL group (0.6533) is slightly better than the CFL group (0.6500). The

mean reveals that the CFL learners exhibit a significant difference in understanding the

two different semantic functions of LE: the semantic meaning of completion (0.7333) is

better understood than change of state (0.5667). However, the CHL group (0.6333 for

completion and 0.6833 for change of state) and the NS group (0.6233 for completion and

0.6437 for change of state) showed almost no difference in comprehension of these two

functions.

The second part of the questionnaire (part 2) tests the comprehension survey when the verb LE and sentence final LE coincide. The fourth part (part 4) is a judgement test intended to see whether an English background and their grammar knowledge has an influence on subjects' ability to comprehend LE. Part 1, Part 2 and Part 4 are all related to the comprehension abilities of subjects of the aspect marker LE. Therefore, we organized the data analysis results in the same table, but we will explain each part separately in details.

Table 4.3 reveals that in the comprehension survey when verb LE and sentence final LE coincide (see data for part 2), the accuracy of the CHL group (0.6458) falls between the NS group (0.8125) and the CFL group (0.6313). The NS group (0.8125) is significantly better than the CHL group (0.6458), while the CHL group (0.6458) is slightly better than the CFL group (0.6313).

Table 4.3 The comprehension accuracy of the three groups

Accuracy of comprehension (SD) of CFL, NS and CHL			
	Part1	Part2	Part4	Average
CFL	0.6500(0.1865)	0.6313(0.1876)	0.4267(0.1926)	0.5693（0.1889）
NS	0.6342(0.1969)	0.8125(0.2118)	0.5875(0.1941)	0.6781（0.2009）
CHL	0.6583(0.2320)	0.6458(0.2750)	0.4125(0.2401)	0.5722（0.2490）
Average	0.6475(0.2034)	0.6965(0.2393)	0.4722(0.2228)	
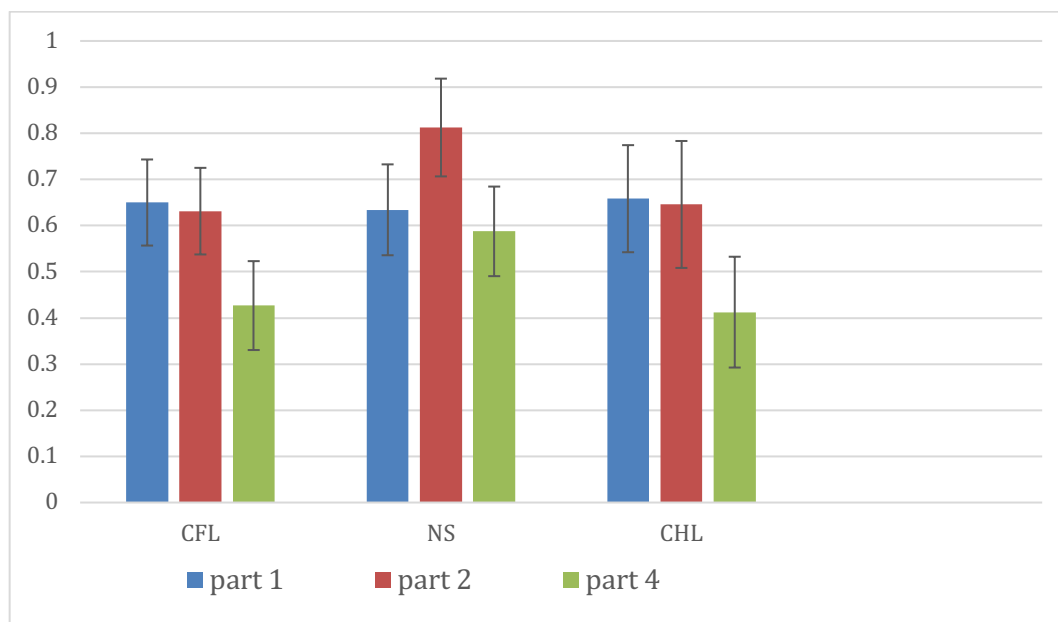
Figure 4.2 The comprehension accuracy of CFL, NS and CHL in part 1, part 2 and part 4

As for the judgement test which was intended to see whether English has an influence on the subjects' ability to comprehend LE (Part 4), the one-way between-subjects' ANOVA analysis reveals that language background has a significant influence on comprehension accuracy ($F_{(2,69)} = 10.434$, $p<0.0005$). Table 4.3 shows that the NS group (0.5875) had much higher accuracy than the CHL (0.4125) and CFL group (0.4267), but the CHL group (0.4125) and the CFL group (0.4267), had no obvious difference. From the mean shown in Table 4.3, and the CHL group's (0.4125) comprehension ability exhibits the most severe English influence, and the CFL group (0.4267) demonstrates slightly less English influence than the CHL group (0.4125). The NS group (0.5875) shows the least influence of English. The mean reflects only slight differences between these three groups. The Post hoc compare result reveals a significant difference between the CHL group and the NS group ($p<0.0005$), what's more, there is an obvious difference between the CFL group and the NS group ($p=0.001<0.05$).

However, there is no significant difference between the CHL group and the CFL group (p=0.880).

The three parts of the comprehension survey are designed with three affected factors (hereafter refer to as three factors) that will influence the subjects' ability to comprehend LE: Part 1 uses similar multiple-choice answers, Part 2 uses different conversation scenarios, and Part 4 tests first language as an influencing factor. Therefore, we adopted a 3 (three groups: CHL, CFL, NS) ×3 (affect factors: part1, part2, part4) mixed ANOVA data analysis method. The mixed ANOVA reveals a significant main effect of language background ($F(2,69)=7.237$, $p=0.001<0.05$), the result also reveals a significant main effect by the different influence factors ($F(1,69)=24.100, p<0.0005$); and the mixed influence between language background and different influence factors ($F(4,69)=2.425$, $p=0.052$) further strengthened the differences between these three groups. The data analysis reveals that subjects with different language backgrounds have different comprehension abilities of the aspect marker le, or their comprehension knowledge has a significant difference. In these three parts of the comprehension survey, the NS group always performed better than the CHL group, and the CHL group always performed better than the CFL group. As for the influence factors, the comprehension ability in the conversation scenarios is better than comprehension in a single sentence, and comprehension in a single sentence is better than comprehension influenced by English. This result reveals that comprehension of the aspect marker LE in the conversation scenarios is easier than in a single sentence, and the influence of English or first language grammar knowledge made it more difficult to comprehend LE. The comprehension abilities of subjects with different backgrounds were influenced by the

three factors to different degrees. The degree to which the CHL group was influenced in comprehension in single sentences (0.6583) and in conversation scenarios (0.6458) is almost the same as the influence in the CFL group (0.6500/0.6313) and the NS group (0.6342/0.8125). However, the accuracy data in Table 4.3 reveals that the CHL group (0.4125) and the CFL group (0.4267) were influenced more by English or first language grammar knowledge than the NS group (0.5875) in Part 4.

4.2.1.2 Production data analysis comparing CHL, NS and CFL

The questionnaire we designed to investigate the subjects' production ability of the aspect marker le consists of two categories of survey items. There are 10 survey items in single sentences, and one survey item is a short paragraph. We will analyze the data in the 10 single sentences first, followed by the data analysis of the short paragraph. We analyzed these data along with the comprehension survey part. Table 4.4 below shows the accuracy of the production (it only contains 10 single sentence production data) and comprehension of these three groups.

Table 4.4 The accuracy of production (10 single-sentence production data) and comprehension

	comprehension	production	average
CFL	0.5660(0.1244)	0.6750(0.1327)	0.6205(0.1286)
NS	0.6777(0.1349)	0.8208(0.1911)	0.7493(0.1630)
CHL	0.5722(0.1473)	0.7542(0.1383)	0.6632(0.1428)
average	0.6053(0.1355)	0.7500(0.1540)	
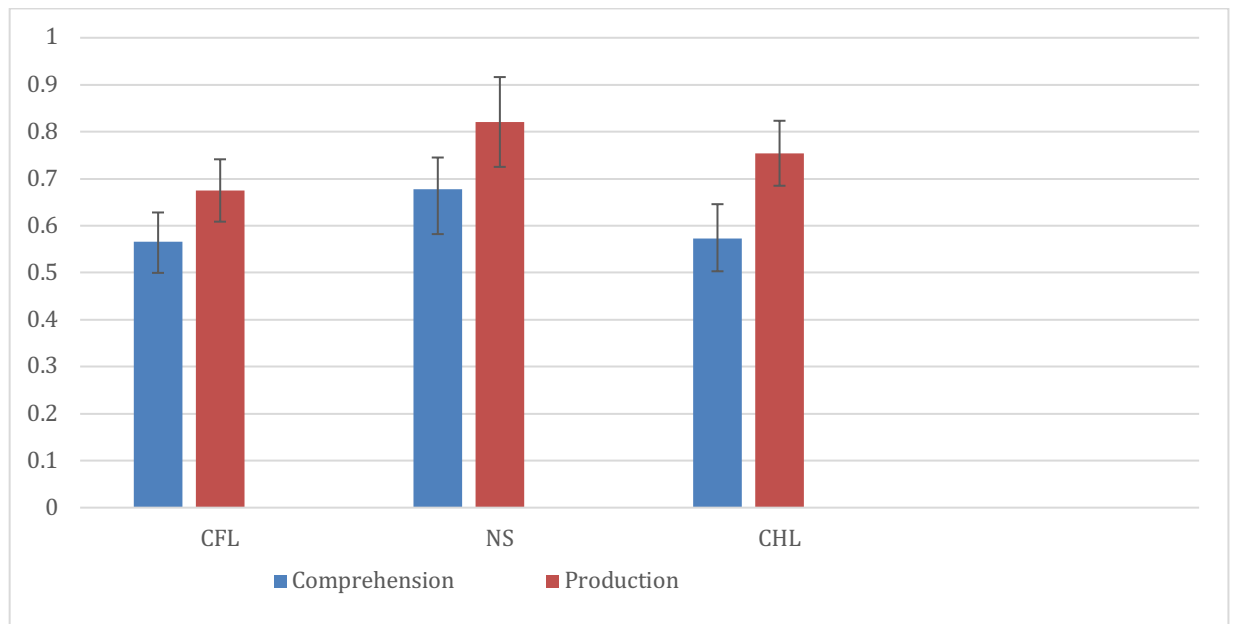
Figure 4.3 The accuracy of production (10 single sentence production data) and comprehension

The mean (see production part) in Table 4.4 reveals that in the 10-single sentence production ability survey, the CHL group (0.7542) has slightly lower accuracy than the NS group (0.8208), and slightly higher accuracy than the CFL group (0.6750), while the NS group (0.8208), has significantly higher accuracy than the CFL group (0.6750). Table 4.5 below shows the production preference percentages of these three groups in the short paragraph.

Table 4.5 The percentages in the short paragraph production of three groups

Blank number	CFL		CHL		NS	
	Number of subjects	Percentage of using le	Number of subjects	Percentage of using le	Number of subjects	Percentage of using le
a	14	58.33%	67	65.05%	53	96.36%
b	5	20.83%	12	11.65%	1	1.82%
c	10	41.67%	21	20.39%	3	5.45%
d	6	0.25	13	0.1262	6	0.1091
e	15	6.25%	47	45.63%	16	29.09%
f	10	41.67%	41	39.81%	4	7.27%
g	17	70.83%	40	38.83%	11	20.00%
h	11	0.4583	34	0.3301	15	0.2727
i	6	25.00%	9	8.74%	8	14.55%
j	19	79.17%	76	73.79%	51	92.78%
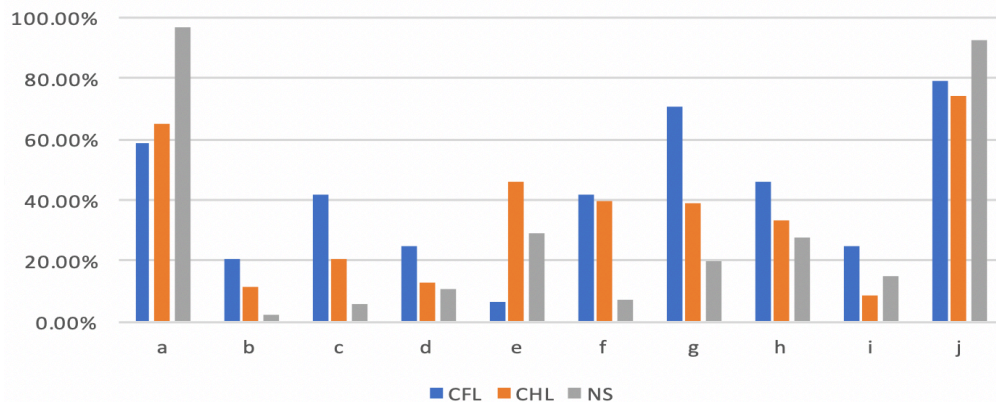
Figure 4.4 The percentages in the short paragraph production of three groups.

The data showed in Table 4.5 that the CHL group (a:65.05% j:73.79%) and the NS group (a: 96.36% j:92.78%) had the highest percentages in blank a and blank j, while the CFL group had higher percentages in blank a (58.33%) and blank (j:79.17%), but the highest percentage shows up in blank g (70.83%). All the three group had the lowest in blank d, and blank h. The CFL group preferred blank b (20.83%), blank c (41.67%),

blank f (41.67%), blank g (70.83%) and blank i (25.00%) more than the CHL group. The CHL group had higher percentage in all the blanks except blank a, blank I and blank j than the NS group.

4.2.1.3 Acquisition ability of the aspect marker le of three groups.

Table 4.4 summarizes the overall performance of the three groups in comprehension and production ability. We adopted a 3（CHL, CFL, NS）×2（comprehension，production）mixed ANOVA analysis. The result reveals that language background has a significant effect on the acquisition of le: the CHL group is not as good as the NS group, but better than the CFL group (F (1,69) =3220.637, p<0.0005). The main effect showed by the result is that there is a significant difference between comprehension ability and production ability in the acquisition of le (F (2,69) =15.819, p<0.0005). The interaction effect between language background and the acquisition of the aspect marker LE has no significant difference (F(2,69) =0.713,p=0.494). Different groups exhibit the same difference between comprehension and production ability: that is, the production ability is better than comprehension ability.

4.2.2 Data analysis of CHLUSA and CHLCN

4.2.2.1 Comprehension Data analysis (part 1) of CHLUSA and CHLCN

Table 4.6 Accuracy of comprehension part 1 (SD) of CHLUSA and CHLCN

	change of state	completion	Average
CHLUSA	0.8476（0.1537）	0.7143（0.2414）	0.7810（0.1976）
CHLCN	0.5048（0.2156）	0.4286（0.2125）	0.4667（0.4281）
Average	0.6762（0.2536）	0.5714（0.2671）	
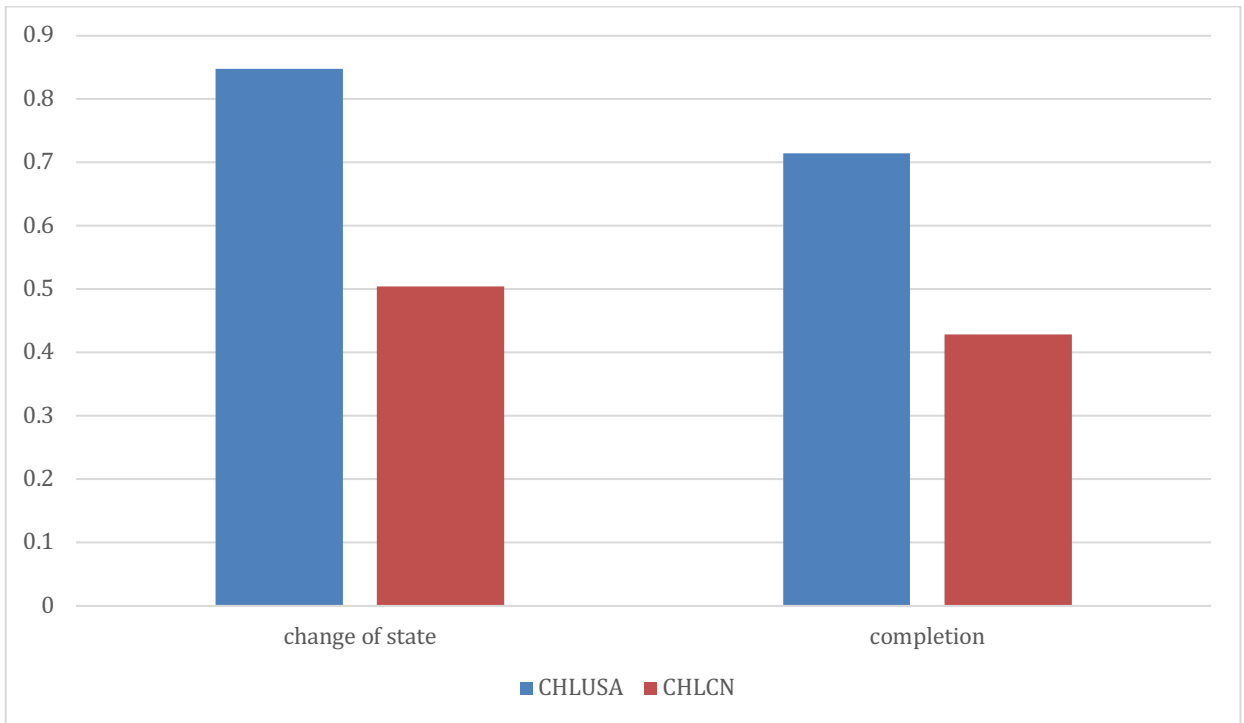
Figure 4.5 Accuracy of comprehension part 1 (SD) of CHLUSA and CHLCN

Table 4.6 reveals that for the comprehension of LE in a single sentence (Part 1), a 2（CHLUSA，CHLCN）×2（change of state，completion）mixed ANOVA analysis was adopted. The mixed ANOVA reveals a significant main effect of language background ($F(1,40)=30.813$, $p<0.0005$), moderated by a significant difference in the main effect of le's semantic functions ($F(1,40)=7.481$, $p=0.009<0.05$). Moreover, there is a significant interaction between language background and the type of LE ($F(2,69)=5.034$, $p=0.009<0.05$). The accuracy for "change of state"(0.8476&0.7143) is higher than for "completion."(0.5048 & 0.4286) However, the interaction between language background and LE's two semantic functions shows no significant difference between the CHLUSA and CHLCN groups($F(1,40)=0.556$, $p=0.460$) . Both the CHLUSA and CHLCN groups showed higher accuracy in the "change of state" survey part than the "completion" survey part.

4.2.2.2 Comprehension Data analysis of CHLUSA and CHLCN

Table 4.7 Accuracy of comprehension of CHLUSA and CHLCN (SD)

	Part1	Part2	Part4	Average
CHLUSA	0.7636(0.1814)	0.7614(0.1633)	0.3773(0.2409)	0.6341(0.1952)
CHLCN	0.5182(0.1622)	0.6250(0.2148)	0.4227(0.1659)	0.5219(0.1809)
Average	0.6409(0.2106)	0.6932(0.2008)	0.4000(0.2057)	0.5780(0.2057)
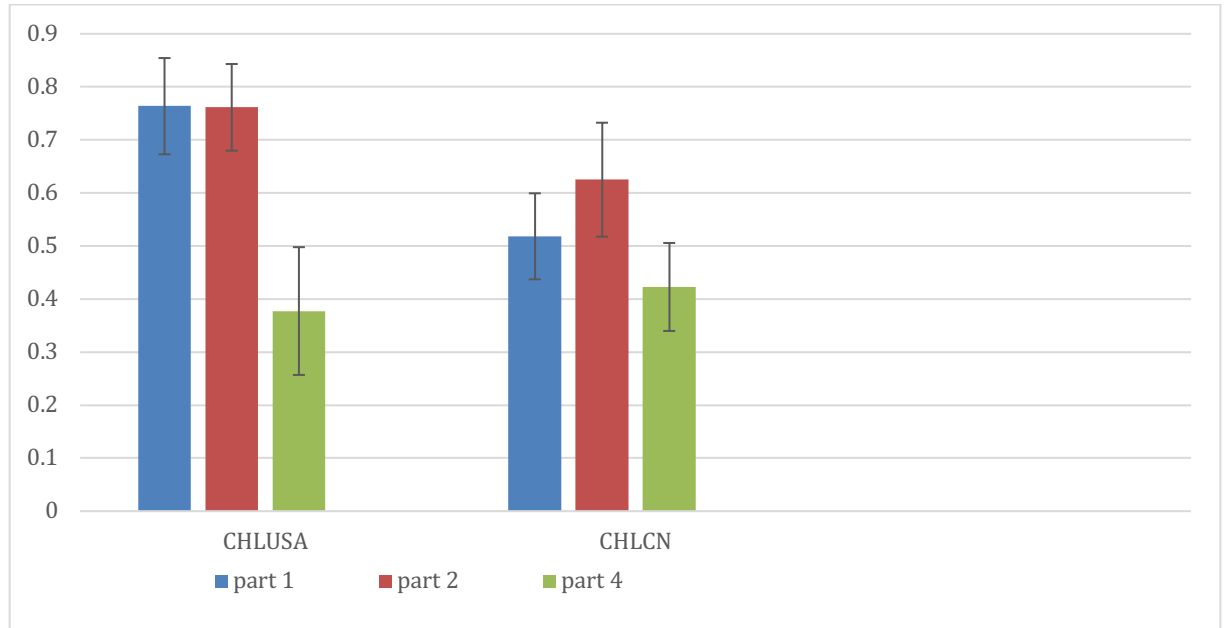
Figure 4.6 Accuracy of comprehension part 1, part 2 and part 4 of CHLUSA and CHLCN

The data in Table 4.7 (see part 2) reveals the accuracy difference for the comprehension of LE in different conversation scenarios. The mean showed the CHLUSA group has higher accuracy than the CHLCN group. What's more, the SD data reveal a more stable comprehension accuracy for the CHLUSA group than the CHLCN group.

As for the influence of English on the comprehension of LE in Part 4 (see Table 10), the mean showed slightly higher accuracy for the CHLCN group than the CHLUSA group, which means the CHLUSA group was influenced more by Part 4 than the CHLCN group. We further adopted an independent T-test to analyze the two groups' data. The

result shows no significant difference between these two groups in part 4, which means English has the same influence on both the CHLUSA group and the CHLCN group (t=0.211, df=42, p=0.834) .

We adopted a 2（CHLUSA，CHLCN）×3（part1, part2, part4）mixed ANOVA analysis to analyze the whole comprehension part (including Part 1, Part 2 and Part 4). The result reveals there is a significant difference in the main effect of language background (F(1,42) =11.123,p=0.002<0.05) on the comprehension of le in different situations. There is an obvious difference between the CHLUSA and the CHLCN groups in their ability to comprehend LE. The average mean reveals that the CHLCN group was influenced more by the three factors we designed than the CHLUSA group. The result also reveals there is a significant main effect of the three factors (F(2,42)=30.099,p<0.0005). This shows the comprehension of LE was influenced by different factors. The data analysis reveals that the influence of English (Part 4) is more powerful influence than single sentence (Part 1) and contexts (Part 2) on the comprehension of LE, and context has the least (Part 2) influence. This indicates a conversation scenario is the most helpful and easiest way to understand the semantic functions of LE. The result reveals a significant interaction influence of language background and influence factors of LE (F(2,42)=6.646,p=0.002<0.05). The result of a Simple Effect Test reveals a significant difference in the comprehension of LE in Part 1 between the CHLUSA and the CHLCN groups (F(1,42)=22.382,p<0.0005). And also has a significant difference in Part 2 (F(1,42)=5.621,p=0.022<0.05). However, there is no obvious difference in Part 4 (F(1,42)=0.531,p=0.470), which means English has the same influence on the comprehension ability of the CHLUSA group and the CHLCN group.

4.2.2.3 Acquisition ability of the aspect marker LE of CHLUSA and CHLCN.

Table 4.8 The accuracy of production (10 single sentence production data) and comprehension (SD)

	comprehension	production	average
CHLUSA	0.6437（0.1099）	0.7714（0.1309）	0.7076（0.1204）
CHLCN	0.4619（0.1371）	0.7667（0.1742）	0.6143（0.1557）
average	0.5528（0.1533）	0.7690（0.1522）	
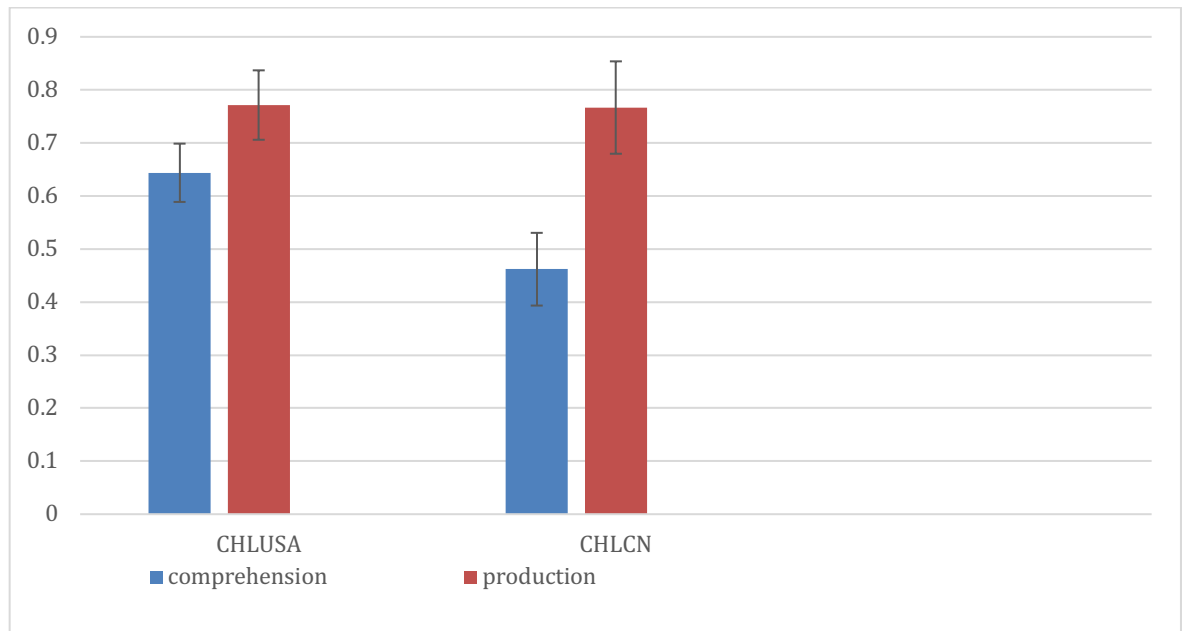
Figure 4.7 The accuracy of production (10 single sentence production data) and comprehension

Table 4.8 reveals there is no obvious difference between the two groups in the production survey consisting of the 10 single sentences. Table 4.9 above compares the percentages of the CHLUSA group and the CHLCN group in the short paragraph production.

Table 4.9 The preference percentage in the short paragraph production of CHLUSA and CHLCN

Blank number	CHLUSA		CHLCN	
	Number of subjects	Percentage	Number of subjects	Percentage
a	12	54.55%	55	67.90%
b	2	9.09%	10	12.35%
c	3	13.64%	18	22.22%
d	2	9.09%	11	13.58%
e	6	27.27%	41	50.62%
f	5	22.73%	36	44.44%
G	11	50%	29	35.80%
H	3	13.64%	31	38.27%
I	1	4.55%	8	9.88%
J	15	68.18%	61	75.31%
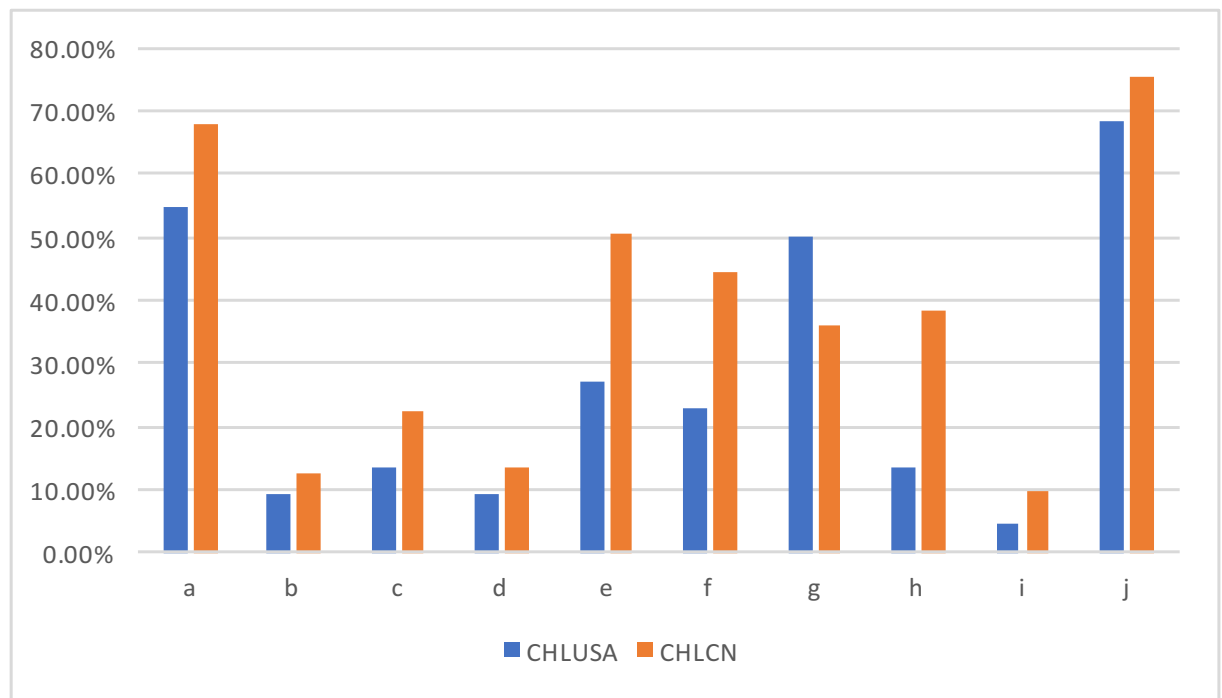
Figure 4.8 The percentages in the short paragraph production of the CHLUSA and the CHLCN

The data showed in Table 4.9 reveals that both the CHLUSA (abbreviated to U)

and the CHLNS (abbreviate to C) groups had the highest percentages in blank a (54.55%

U / 67.90% C) and blank j (68.18% U/ 75.31% C), and the lowest in blank b (9.09% U /

12.35% C), blank d (9.09% U / 13.58% C), and blank I (4.55% U / 9.88% C). The

CHLCN group preferred blank c (22.22%), blank e (50.62%), blank f (44.44%) and blank

h (38.27%) more than the CHLUSA group (blank c 13.64%, blank e 27.27%, blank f

22.73% and blank h 13.64%).

As for the whole acquisition ability, we adopted a 2（CHLUSA，CHLCN）×2

（comprehension，production）mixed ANOVA analysis method. The result reveals

there is a main effect of language background in acquiring LE

$(F(1,40)=5.018, p=0.03<0.05)$, which indicates the two groups have significantly different

acquisition characteristics in acquiring LE. The CHLUSA group had better ability in

comprehending LE (0.6437) than the CHLCN group (0.4619), but shows no advantages

in the production of LE (0.7714U / 0.7667C). The result shows a main effect of the

acquisition ability of LE $(F(1,40)=60.562$，$p<0.0005)$, which means there is a difference

between the comprehension and production ability of LE: the production ability is better

than the comprehension ability. The reason could be that grammar knowledge is explicit

knowledge and is more difficult to acquire than implicit knowledge acquired when they

are young. The result indicates there is a significant interaction effect between language

background and the ability to acquire LE $(F(1,40)=10.139$，$p=0.003<0.05)$. This data

analysis reveals that CHLUSA and CHLCN exhibit a significant difference in their

comprehension (0.6437U / 0.4619C) and production of LE (0.7714U / 0.7677C). The

mean in Table 4.8 shows that the production ability of CHLUSA (0.7714) is slightly

better than their comprehension ability (0.6437); while for the CHLCN, their production

ability (0.7667) is much better than their comprehension ability (0.4619). Possible

reasons for the results will be explained in the discussion chapter.

4.3 Result

In this study, we posed three research questions: 1) What are the differences

between advanced CHL and CFL learners with regard to the acquisition of "LE 了"?

2)What are the differences between advanced CHL learners and native Chinese speakers

with regard to the acquisition of "LE 了"? 3) What are the differences between advanced

CHL learners who are studying in an English-dominant background and those learners

who are studying in a target Chinese language background concerning the acquisition of

"LE 了"? After we analyzed the data, we had answers for the three research questions.

The following are the answers for three research questions respectively.

For research question 1, the data analysis reveals that in the comprehension

survey, the CHL group did better than the CFL group. While in the production survey

part, the CHL group also did better than the CFL group. As for the English influence on

their comprehension ability, there was no obvious difference.

For question 2, the data analysis reveals that the comprehension and usage of le

by the CHL group is worse than for the NS group, while the CHL group is influenced

more by English than the NS group.

For question 3, the data analysis reveals that CHLUSA did better than CHLCN in

both the comprehension and production survey parts. The CHLUSA and CHLCN were

influenced equally by English.

Table 4.10 Result for research questions.

	Comprehension ability	Production ability	English influence
Q1: CHL vs. CFL	CHL>CFL	CHL>CFL	CHL=CFL
Q2: CHL vs. NS	CHL<NS	CHL<NS	CHL>NS
Q3, CHLUSA vs. CHLCN	CHLUSA>CHLCN	CHLUSA>CHLCN	CHLUSA=CHLCN

Note: Q means "research question"; ">" means "better" or "more"; "<" means "worse" or "less", "=" means "equal to" or "the same"

CHAPTER 5

DISCUSSION

In this study, we have different numbers of subjects respectively for the CHL, the NS and the CFL groups. When we did the data analysis, we adopted the ANOVA data analysis method. This method requires the same number of subjects in each group, so, we randomly chose a small number among the large number of subjects in the bigger group. In order to make sure the subjects we randomly chose reliably to represent the groups, we randomly chose three times and analyzed the data. We found different data analysis values but the same final result. Thus, in Chapter 4, we present only one data result. Based on our data analysis, part of our results had been proven by past studies, and also agree with our prediction. In Chapter three, we proposed hypotheses for the research questions (see Table 3 for research hypothesizes). There are also new interesting findings that we hadn't expected.

5.1 Discussion of the survey results.

The current study found that when the survey was done in a single sentence setting rather than in context, all the groups of subjects had a lower percentage of accuracy: the average is sixty percent (see Table 6). This result is consistent with past studies that showed that the acquisition of LE in a single sentence is not reliable: LE needs to be learned in language contexts (Zhao 1997, Sun 1999, Yip & Don 2006). The study also distinguished participants abilities in comprehending le's functions of indicating completion and change of state. The first part of the survey contained 10 items, in 5 LE indicated change of state, in the other 5, LE indicated completion. The CFL

group showed a significant difference in their comprehension of these two semantic meanings: they did better in the completion than in the change of state part. Past studies showed that when le indicates completion, CFL learners can understand better than LE's other semantic functions (Wen 1995,1997, Sun 1999). Furthermore, the CHL and NS group exhibited no obvious difference in their comprehension of these two semantic functions of LE. Since LE is usually used in spoken language (Li & Thompson 1981), and the CHL and NS have similar exposure to the Chinese language (Montrul, 2008), they produced similar survey results.

5.1.1 The comprehension survey result in the CHL, NS and CFL groups.

This current study found that language context has no significant influence on the comprehension of the aspect mark LE, in the CHL and CFL groups (see Table 7 date for part 2). This result is consistent with our hypothesis. According to past studies, both heritage language learners and second language learners have the following language learning limitation: they are "contextually restricted, less variety of structures/vocabulary, input from other non-native speakers." (Montrul 2008, p. 217). In our study, the result showed that CHL learners and CFL learners' comprehension was restricted by the conversation scenarios in the questionnaire. There is not much accuracy difference in survey Part 1 and Part 2. Compared with the CHL group and the CFL group, the NS group showed significantly higher accuracy when comprehending the aspect marker LE in context.

In questionnaire Part 4, the data analysis between the CHL group, the NS group and the CFL group was consistent with past studies. This part was designed to see the influence of English language background and their original grammar knowledge on their

acquisition of the aspect marker LE. The data analysis showed that the results comparing the CHL group with the CFL group, and the CHL group with the NS group are in accord with our hypotheses. According to past studies, both heritage language learners and second language learners have "developmental and transfer errors" from their first language when learning other languages (Montrul 2008). In our study, the CHL learners and the CFL learners are all affected by English. For the CFL leaners, English is their first language. For the CHL learners, English and Chinese developed together at the very beginning, however, because the CHL learners are living in an English dominant environment, their English language may lead to transfer errors in their Chinese language learning. Therefore, the CHL group and the CFL group demonstrated no significant difference in accuracy in survey Part 4. Meanwhile, as native speakers, the NS group exhibited a higher accuracy rate than the other two groups, which means they showed much less side influence caused by English than the CHL group and the CFL group.

5.1.2 The production survey results in the CHL, NS and CFL groups.

As for the production survey result (see table 4.4), in the single sentence production part, the results comparing the CHL group (0.7542 accuracy) and the CFL group (0.6750 accuracy) is in accordance with the past studies. Past studies of other language indicated that heritage learners have advantages over second language learners in terms of "phonology, morphology, syntax, lexical-semantics and sentence processing (written and spoken)." (Montrul, 2008). Thus, it is not surprising to find that the CHL group demonstrated an advantage over the CFL group with better production outcomes. Moreover, since native speakers have "successful and complete" outcomes, while heritage language learners have "variable and typically incomplete" outcomes (Montrul,

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2008), the research data in our study showing that the NS group (0.8208 accuracy) has better production outcomes than the CHL group (0.7542 accuracy) corresponds with result of past studies.

In the short paragraph production part, there are more variants than in the single sentences. The usage of le depends on the participants interpretation of the scenario. The short paragraph that we adopted in the survey (Zhao, 1997) contains 5 LE after the verb and 5 LE at the end of the sentence. The result (see table 4.5 for each blank accuracy) showed that the NS group has higher accuracy than the CHL group, and the CHL group is better than the CFL group. We found that the three groups all had higher percentages in blank a and blank j, which are the places that need the aspect marker LE. The result for the CFL group is in keeping with past studies of their error types in using LE (Zhao 1997, Wang 2016, Zhang 2014, Wen 2008, Xue 2003, Han 2003, Gao 2005, Jie 2001, Xin 2001, Wang 1995). The CFL group overused LE in the position where it is not necessary (see blank f for example); at the same time, they underused LE where it is needed (see blank a for example, only approximately half of the CFL participants used LE). The results for the CFL group showed that they were not sure whether they should use LE or not. The survey notes showed us that some participants inserted LE at first, then they erased it, some participants were not sure, so they wrote a note beside the blank: "no LE or has LE are both okay." Their notes could be reasonable in those single sentences in the production ability survey; however, in the short paragraph, the blank must need LE or no LE, due to the close interaction of each single sentence in the paragraph. According to past studies, this uncertainty in deciding whether to use LE might be due to the unclear semantic meaning of LE in the paragraph (Zhao 1997). The CHL group had a lower

overuse of LE than the CFL group, but had a higher overuse rate than the NS group. One reason could be that they were influenced by other languages; another reason could be they are prone to use LE more often in daily conversation, which is not as strict as written language.

5.1.3 The CHLUSA and CHLCN groups survey results

The most interesting and surprising findings in our study lay in survey Part 4 comparing the CHLUSA and CHLCN groups. The current study predicted in Chapter 3 that in Part 4 the CHLCN group would comprehend the semantic meaning of LE better than the CHLUSA group. However, our data analysis (see table 4.7) showed that the CHLUSA group (0.6341for average accuracy) had higher accuracy than the CHLCN group (0.5219 for average accuracy). This result reveals that the CHLCN group was influenced more by factors in Part 4 than the CHLUSA group. This surprising result could be due to the following reasons:

Firstly, CHLUSA is better maybe because they have a clearer idea of what LE is about; however CHLCN group has more complex native languages, which may confuse them if their native language have similar aspect markers. the CHLCN group might not be affected by the side effects of the English language we investigated, but affected by other factors. One factor could be their native language transfer (Montrul 2008). Since most of these CHLCN learners come from Southeast Asian countries, including Thailand, Indonesia, the Philippines, Laos, Burma, and Malaysia, their dominant languages are also alphabetic language that are quite different from the Chinese language. Another factor could be that their comprehension ability is limited by the single sentence setting. Since the CHLCN learners are all learning the Chinese language in a

Chinese environment, they have a greater ability to understand LE in a language context. When they responded the single sentence items in the survey, they were prone to put them into the context of the spoken Chinese of their daily lives. The spoken Chinese language is more flexible and free than the written language. One of the participants wrote a note on the questionnaire: "As a Chinese language learner, grammatically speaking, some sentences are not right, however, I think it is acceptable when I use like this in my daily life." Because informed usage is acceptable in spoken language, they were more willing to accept incorrect usage in the survey item. Therefore, the CHLCN learners showed a high level of willingness to accept the given survey items.

Secondly, we predicted that the CHLUSA group would be affected by their English language background, and this is proved to be true (Montrul 2008). However, every coin has two sides. When CHLUSA learners are confronted with how different the English and Chinese languages are, they become more aware of the language differences. When they judged the survey items in Part 4, they were highly cognizant of the grammar and the semantic meaning. Therefore, their accuracy outcomes are higher than the CHLCN group, contradicting our prediction. There were four participants who talked with the researcher after they finished the survey. They said: "There is no tense in the Chinese language, when I translate this Chinese sentence into English, it is grammatically right, however, it is not the right way to say this in Chinese." One of them said he is not sure whether the survey item is wrong, but he is sure that it is not right according to his knowledge.

The production results of the CHLUSA group and the CHLCN group are also different from what we had predicted in the hypotheses. The CHLUSA group and the

CHLCN group showed no significant difference in the production survey in 10 single sentences. This result is surprising, because the CHLCN learners are learning Chinese in a Chinese language environment, and therefore have much more language input and more exposure to Chinese than the CHLUSA learners "'comprehensible' input is particularly beneficial" (Krashen1982). Thus, they were expected to perform better in this part. There are two possible factors that might have influenced this result. One reason is that these CHLCN learners are studying in Guangzhou province, where people might speak Cantonese or other non-Mandarin Chinese dialects; to some extent, the dialects' side effects might diminish their target Chinese language learning advantages (White 1987). Therefore, the CHLCN group has no advantage in single sentence production. Another possible reason might be that heritage learners have acquired Chinese aspect marker LE at a young age, so they will perform well on the task regardless of where they are studying Chinese. So, in single sentences, the use of LE is easy for all the CHL learners: they all listen to and speak Chinese in their daily life at home. Therefore, there is not much difference between the two groups in the single sentence production part.

The result for the short paragraph part of the production survey comparing the CHLUSA and the CHLCN group is not surprising. Since LE is frequently used in spoken Chinese (Li & Thompson 1981), the CHL groups are exposed to it in daily Chinese conversation (Montrul, 2008), therefore, they tend to use LE more often than it is needed in written language. Table 13 shows that both groups overused LE. Another factor influencing their overuse of LE in the short paragraph could be their writing ability. Past studies showed that it was possible that students understand a specific grammar point, however, when they need to use it to compose a paragraph or an article, their writing

ability might influence their accuracy of usage this grammar point accurately (Luo 2002).

Of even more interest, the CHLCN group had a higher percentage of using le than the

CHLUSA group in all of the 10 blanks except blank g (see Figure 8). As discussed

before, the reason could be that the CHLCN group was exposed more in the target

Chinese language environment, and, their daily conversation language had more

influence on their written language.

5.1.4 The comprehension and production results.

The data analysis reveals that all the subjects had a higher accuracy percentage in

the production survey part than in the comprehension ability part. This result is quite

different from past studies that are related to learners' production and comprehension

abilities: generally speaking, the comprehension ability should be better than the

production ability. This result could be caused by the following two reasons:

Firstly, the questionnaire we designed may not have been well balanced. The

primary purpose of this study is to investigate whether subjects can understand the basic

semantic meaning of LE, and furthermore, on the basis of the understanding, whether

participants can use LE's basic sematic meaning properly. Therefore, we focused more

on the comprehension ability survey than the production survey. The first part and the

second part are all about the comprehension of LE, and Part 4 is about the comprehension

ability with the influence of English. Although these three parts had different influence

factors, they are all about the comprehension of LE. The total number of survey items for

comprehension is 24. Only Part 3 addresses the production ability. Although it contains 5

different situations of using LE, it had only 10 single survey items and 1 paragraph due to

the time limitation of the questionnaire. The unbalanced design may have led to the unbalanced survey results for comprehension and production abilities of le.

Secondly, in interviews with 10 survey participants who finished the survey, they said that the comprehension of LE is harder than the production. Especially in the first comprehension part, the single sentence can be put in different situations that will influence the meaning of the sentence. The comprehension of LE in the fourth part is even harder due to English language effects, moreover the comprehension test in Part 4 in addition to the difficult of being in the form of single sentences. Compared with Part 1 and 4, questionnaire Part 2 is considerably easier. In Part 2, all the LE appeared in context, so it was easier to figure out the indicated semantic meaning. This is the reason all the subjects did better in Part 2 than in Parts 1 and 4. In the production ability survey, subjects were prone to put the single sentence into their preferred imaged context. Therefore, the production survey was easier and had a higher accuracy result.

Thirdly, the way we judge the survey items' accuracy rate might also influence the data results. We designed only one correct answer for each comprehension ability survey item. However, for the production of LE, most of the survey items are flexible. For example, for survey item three in Part 3, if the participant used LE2 at the end of the sentence—no matter whether the participant used LE1or not—this answer is treated as correct. To some extent, due to the limitation of the basic semantic functions in the single sentences of the comprehension part, and the flexibility in the production part, it is easier to have higher accuracy in the production than in the comprehension survey part.

5.2 Pedagogical implications

Our study data provide a partial answer to some of the pedagogical questions related to advanced level CHL learners in acquiring the aspect marker LE. There are four possible implications. The first two are from the perspective of the students; the other two are from the perspective of the instructor.

Firstly, linguistic facts matter when teaching LE: students can understand LE better when its semantic functions are made explicit. Our research focused on the basic semantic functions of LE, our result proved that when its semantic functions are explicated, participants had higher accuracy in both comprehension and production of LE. This finding agrees with past studies (Zhao 1997). In our study, when LE's semantic functions are definite in each single sentence, participants showed higher accuracy. Whereas when le is required in a short paragraph, especially in the production part when its semantic meaning became complicated and closely related to the whole context, CHL students overused le more than in the single sentence. This result indicates that making semantic functions of le explicit can help students acquire le better.

Secondly, students can acquire le better in context than in single sentences. Our research results reveal that advanced CHL learners hadn't fully acquired the usage of the aspect marker LE, especially in written language. Past studies suggested that LE should be acquired in context rather than in single sentences (Zhao 1997, Sun 1993). Our research results agree that the comprehension of LE in context was better than in single sentences. Moreover, with regard to production, our results showed that because single sentences had been commonly used to teach LE,   the students production of LE in a short

paragraph had lower accuracy than in the single sentences. This result reinforces the necessity for students to learn the production of LE in context.

Thirdly, from the perspective of instructors, explicit teaching methods would help students distinguish the semantic functions of LE. Our research reveals that English had side effects on CHL learners' usage of LE. Moreover, instructors need to use the translation method properly to help students understand LE. Our result showed that when LE indicates completion, students tend to regard it as a tense marker. Instructors should give students immediate, direct, and explicit feedback when teaching LE. Instructors could provide more examples for students, and put LE in scenarios and contexts to help students understand its semantic meaning, recognize that its semantic meaning can be influenced by context, and realized that LE is not a tense marker but an aspect marker. Furthermore, instructors should be aware that a positive attitude toward heritage learners can help their performance. Past studies have discovered a negative attitude toward other heritage language learners among language instructors. Parodi (2008) pointed that: "one of the biggest barriers these bilingual heritage students must overcome in their Spanish classes at American universities is the attitude of their Spanish instructors. Frequently, they encounter instructors with the same negative attitudes as monolingual speakers of Spanish towards the way they speak Spanish." Attitude matters when instructors are teaching CHL learners.

Fourthly, the course arrangement might also influence advanced CHL learners acquisition of LE. When we recruited research subjects, we found that in most of the Chinese programs, CHL learners are in a special track at the beginning and intermediate levels. However, when CHL learners reach the advanced level, they are placed in the

same class as CFL learners. For other heritage languages, such as Spanish, Parodi (2008) proposes that "heritage speakers should be taught Spanish in a manner different from that used for L2 students since there are clear differences among native speakers of Spanish, heritage speakers, and L2 learners at the advanced level." The advanced CHL learners should have a special course arrangement due to the difference in language background from CFL learners. I've communicated with several Chinese language instructors and program directors, and they responded that it is really hard to have a special track for CHL students' due to human resource limitations and the small number of students. I propose that cooperation among nearby colleges and universities might serve to solve this problem. For example, there are four other colleges near UMASS Amherst: the five colleges could collaborate to start a special advanced CHL program. There will certainly be some obstacles, however, it is the best way to make full use of the advantages of each college and advanced CHL learners could have a better course design.

As we had mentioned in the literature review, researches for CHL learners are very recent, there is no enough references. The course tracks we discussed above is related to policies and other rules. Compared with CHL researches, Spanish as the heritage language has longer and all-round researchers. Peyton proposed a recommendation in the article Spanish for Native Speakers Education--The State of the Field about what the Spanish language teacher should do. I suppose CHL teaching and learning might benefit from these recommendations:

1) Teachers and school and district administrators should be aware of the language needs in the United States, the importance of heritage language maintenance and development, and the actions needed to bring this about.

2)   Every language teacher preparation program should have at least one course focuses on methodologies for working with heritage language speakers.

3)   Policies should be established so that students receive appropriate academic recognition or credit for Courses.

4)   National language policies should recognize the value of language resources, encourage the study of second language, and provide resources for developing bilingual language proficiency, and guide state and local policies.

CHAPTER 6

CONCLUSION

6.1 Summary of the present study

This study was initiated with the following question: What are the special characteristics of advanced Chinese heritage language (CHL) learners? A thorough review of the literature indicated that CHL learners are different from Chinese as a foreign language (CFL) learners, and, due to the incomplete acquisition of the Chinese language, CHL learners are different from native speakers. Further research showed that many studies of CHL learners were primarily concerned with the subjects' self-identification, and the studies related to their linguistic issues are only addressed the primary levels. Since grammar is one of the most important areas for advanced level language learners, this study addressed the acquisition of the aspect marker LE, which past studies have identified as one of the most difficult points for CFL learners.

To determine the differences in such acquisition between advanced CHL learners, CFL learners and native Chinese speakers (NS), we designed and administered a survey to test the participants' comprehension and production abilities of the aspect marker LE. All the survey items are based on situations in which past studies that showed Chinese language learners are prone to make mistakes. The groups of subjects were recruited at universities in Chinese programs targeting advanced level learners in United States and in China. A total number of 198 subjects voluntarily participated in the survey, and 183 effective survey questionnaires were collected. Data were mainly analyzed by mixed and one-way ANOVA, and other analysis methods were adopted when needed, such as independent T-test analysis, Simple Effect Test and descriptive data analysis.

In this study, we posed three research questions: 1) What are the differences between advanced CHL and CFL learners with regard to the acquisition of "LE 了"? 2)What are the differences between advanced CHL learners and native Chinese speakers (NS) with regard to the acquisition of "LE 了"? 3) What are the differences in the acquisition of "LE 了" between advanced CHL learners who are studying in an English-dominant background (CHLUSA) and those who are studying in a target Chinese language background (CHLCN)? Analysis of the survey data uncovered answers for these three research questions (see Table 14), as follows.

In both the comprehension and production portions of the survey, the CHL group did better than the CFL group. As for the influence of English on their comprehension ability, there were no obvious differences between these two groups. The comprehension and usage of LE by the CHL group was worse than for the NS group, furthermore, the CHL group was influenced more by English than the NS group. The data analysis further revealed that the CHLUSA did better than the CHLCN in both the comprehension and production survey parts. The CHLUSA and CHLCN were influenced equally by English.

The results showed that CHL learners are quite different from CFL learners and native speakers in acquiring the aspect marker LE, and there are some pedagogical implications based on our research results from the perspectives of both students and instructors. We found that students can acquire LE better in context than in a single sentence. They also learn better when semantic functions are made explicit. Instructors

could facilitate learning with tailored course arrangement and teaching methods that explicitly demonstrate the semantic function of LE in the class.

6.2 Suggestions for future related studies.

The current research is a pilot study focused on the advanced CHL learners' acquisition of LE, but it was limited by time and resource considerations. Given the finding that students can acquire LE better in context rather than in the single sentences, future studies could contribute to this field by examining CHL learners acquisition of the aspect marker LE in paragraphs. As we mentioned in the literature chapter, studies have been about CHL learners' motivation for learning Chinese, the subjects' self-identification or other non-linguistic issues. Future studies could focus more on CHL learners' language development and grammar acquisition based on linguistic considerations. Furthermore, the number of CHL learners is relatively small, so cooperation between organizations and colleges/universities is of utmost importance; a large number of participants could lead to more specific results.

6.3 Limitations of this study.

Though we found the appropriate method for the current study, it is not perfect due to certain limitations. Future studies should take these limitations into consideration.

First of all, we don't have a large number of research subjects. Advanced level CHL and CFL learners were far fewer than this study had expected. Although we attempted to collect more data, each university or college only had 2 to 5 advanced level CHL students and about 10 CFL learners. Moreover, due to universities' policies and students' voluntary choices, the number of subjects became even smaller. This study was

very fortunate to be supported by two universities in China mainland; however, due to different language backgrounds, the number of subjects in each group could not be balanced. To some extent, the unbalanced numbers of subjects affected the research data. This small-scale study needed more subjects. Thus, the result obtained in this study can only be applied to advanced level Chinese heritage language learners.

Secondly, unfortunately this study couldn't perform placement tests when recruiting subjects[7]. Since we collected data from different universities and college, all the subjects voluntarily took part in the survey, it was impossible to ask all the subjects to do a uniform placement exam. When we did ask some subjects to take a placement test for this study, they all refused and said they took a placement exam at the beginning of the semester. Though all our research subjects had been placed in the advanced level, since we didn't administer a placement test to double check their language level, this might affect our research data.

Thirdly, the number of survey items may be insufficient. Though we designed a well-rounded questionnaire, due to survey time limitations, each section could only contain a limited number of items. This led to an imbalance in the number of comprehension and production survey items, which might limit our understanding of learners' acquisition.

Finally, a more appropriate approach to survey the production ability of LE would be to ask our research subjects to write a composition or to complete sentences in a longer paragraph (Zhao 1997, Sun 1999). "The context in which the statement is made is extremely important, and, as we will see, the implications of a particular sentence can

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[7] Students did placement test before they were placed in different levels in their Chinese programs.

vary significantly depending on the situation in which it is used." (Yip & Don 2006,

p361). Our original survey design was to ask our participants to watch the video of "Pear

Story"[8] and write a composition at least of 200 words. This composition would need to be

finished in the class independently to make sure the participants used LE in their first

responses. This video is about 6 minutes long and students would need at least 20

minutes to finish the composition. Two reasons made us give up this idea: one is due to

time limitations, class schedule, and students' willingness; the other is that writing ability

might influence the students' ability to use LE correctly (Luo 2002). Therefore, this study

had to adopt the questionnaire format, which is widely used in second language

acquisition research. However, the questionnaire might not as reliably reflect students'

production ability of LE.

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[8] A six-minute film made at the University of California at Berkeley in 1975 and shown to speakers of a number of languages, who were asked to tell what happened in it. See Wallace Chafe (ed.), The Pear Stories: Cognitive, Cultural, and Linguistic Aspects of Narrative Production. Norwood, New Jersey: Ablex (1980).
http://www.linguistics.ucsb.edu/faculty/chafe/pearfilm.htm

APPENDIX A

QUESTIONNAIRE FOR THIS STUDY

Please answer the following information below if you want to do the survey. All the information below will be confidential. It only used for this research.

1.   What Chinese courses are you taking now？Please provide course numbers_____ and names_____（and the course level if you know，e.g.：beginner, intermediate, advanced）
_____

2.   Are you (a) a Chinese heritage language learner，or (b) Chinese as a second language learner?

3.   Primary language you speak at home: (a) Mandarin Chinese   (b) English
Other language(s)/dialect(s): _____

4.   How would you rate your language ability in Chinese? Please circle the most appropriate answer.
Mandarin Chinese: (a) Very good，(b) Good，(c) Fair，(d) Poor
Or other dialects: (a) Very good，(b) Good，(c) Fair，(d) Poor

5.   If you have lived at a place where Chinese is used as one of its major language, fill in the following:
Place (or country)_____ Chinese dialect used there_____
Length of stay_____ years and _____months   from age of ____ to _____
Place (or country)_____Chinese dialect used there_____
Length of stay_____ years and _____months   from age of ____ to ___
Place (or country)_____Chinese dialect used there_____
Length of stay_____ years and _____months   from age of ____ to ___
Place (or country)_____Chinese dialect used there_____
Length of stay_____ years and _____months   from age of ____ to ___

6.   How many semesters of Chinese have you studied (including courses taken at weekend/evening Chinese school)?

1, Please choose the sentence that best reflects the meaning of the Chinese sentence.
(1) 我妹妹会开车了。
   a) My younger sister knows how to drive now.
   b) My younger sister doesn't know how to drive.
   c) My younger sister knew how to drive in the past.
(2) 两年不见，她漂亮了。
   a) She was not beautiful before.

b) She is more beautiful now.

c) She is as beautiful as before.

(3) 他不想去中国了。

    a) He wanted to go to China before.

    b) He didn't want to go to China before.

    c) He wants to go to China now.

(4) 王朋对李友说："过马路了，当心汽车"。

    a) Li You and Wang Peng crossed the road.

    b) Li You and Wang Peng are going to cross the road.

    c) I don't know.

(5) 妈妈对小王说："大学生了，还这么不懂事？"

    a) Xiao Wang was not a college student in the past.

    b) Xiao Wang was a college student.

    c) Xiao Wang is going to be a college student.

(6) 我吃饭了，什么都吃不下。

    a) I have eaten my dinner.

    b) I start eating my dinner.

    c) I haven't eaten my dinner.

(7) 王朋下了课就去打球了。

    a) Wang Peng will go to play basketball after class.

    b) Wang Peng played basketball after class.

    c) Wang Peng had class after playing basketball.

(8) 王朋下了课就去打球。

    a) Wang Peng will go to play basketball after class.

    b) Wang Peng played basketball after class.

    c) Wang Peng had class after playing basketball.

(9) 李友学了三年中文。

    a) Li You will continue to learn Chinese.

    b) Li You will not continue to learn Chinese.

    c) Li You is going to learn Chinese.

(10)   李友学了三年中文了。

    a) Li You will continue to learn Chinese.

    b) Li You will not continue to learn Chinese.

    c) Li You is going to learn Chinese.

2, Read the dialogue, choose the best answer for each question.

(1) 老师问学生："小王来了吗？在哪儿？"

学生："他来了，就在那儿！"

Q: Has he come？

    a) He came.

    b) He has come.

c) I don't know.

(2) 小王问小李："他怎么还没来？"

小李："他来了，在路上呢。"

Q: Has he come?
    a) He has come
    b) He is coming.
    c) I don't know.

(3) 王朋："高文中来了吗？"

李友："你看！他来了！"

Q: Has he come?
    a) He came.
    b) He comes.
    c) I don't know.

(4) 学生问老师："我们什么时候开始上课呢？"

老师："他来了我们就开始吧。"

Q: Has he come?
    a) He comes.
    b) He hasn't come.
    c) I don't know.

3, Please fill the blank with "Le 了" if needed. If not, please write N.

(1) 明天我吃完【 】饭【 】就去看电影【 】。

(2) 我去年每天早晨六点钟起【 】床。

(3) 大会结束【 】好几天【 】。

(4) 我做【 】作业就回家【 】。

(5) 经过三年的努力，他成为【 】作家【 】。

(6) 飞机飞【 】十个小时，终于到达北京【 】。

(7) 我昨天晚上学习到 12 点才睡觉【 】。

(8) 我希望【 】你来。

(9) 小王跟小李红【 】脸【 】。

(10) 我在北京住【 】三个月【 】。

(11) 我在土耳其旅行的时候，对当地人为了价格而争论产生【 】兴趣【 】。一天，我到外地旅行【 】，回来【 】的时候，在汽车站两个司机同时向我走来

【 】。当我问【 】他们车费是多少的时候，一个人回答说："坐我的车要六百元。"他的话刚说完【 】，另一个就立即走上来【 】说【 】："我的车支付伍佰元。"一场争论就这样开始【 】。

4, Do you think the following sentences are acceptable? (A for acceptable, U for unacceptable)

（   ）但买了无数彩票后，我发现了中彩票的机会很少。

（   ）他喝了汤了，可是没喝完。

（   ）王冕七岁的时候死了父亲。

（   ）昨天她的孩子出生，她就是妈妈了。

（   ）他今天早上喝一杯水和两杯咖啡。

（   ）他终于来了两个客户。

（   ）他把汤喝了，可是没喝完。

（   ）他已经到美国三个月了。

（   ）我去年天天留神了他的举动。

（   ）我第一次来到了中国学习，遇到了很多困难。

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