CHINESE IMMERSION LANGUAGE EDUCATION

by

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A Dissertation Submitted to the Faculty of the

DEPARTMENT OF EAST ASIAN STUDIES

In Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

2017

THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

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ACKNOWLEDGEMENTS

My sincere thanks first go to the members of my dissertation committee. I am grateful to my adviser Dr. Feng-hsi Liu for years of mentoring and guidance on how to do research, which has helped me become a better researcher, and for her detailed comments on each of the chapters. I thank Dr. Mary Carol Combs, who as co-chair of my committee, has provided me with valuable guidance in both the content and the organization of the dissertation. I am also grateful to Dr. Matthew B. Christensen, who has helped me since I was in the MA program and has long prepared me for the academic field. He has always encouraged me and offered suggestions when I needed them. I also thank Dr. Mariko Karatsu for her continuous support throughout the entire process of dissertation writing.

I would also like to thank Dr. Robert A. Ariew. Although he is not a member of my dissertation committee, he has helped me design the experiment in the dissertation and given me helpful suggestions and encouragement when I was confused.

I am grateful to friends and colleagues who helped me conduct the research on immersion and non-immersion programs and supported me when I was working on my dissertation. In particular, I thank Raymond Harris and Sharla Ruiz, who have helped me improving my English.

The dissertation would not have been possible without the assistance and cooperation of students, teachers, parents, and staff members of the four schools where I collected my data. I thank them all for helping me accomplish my task. It has been a rewarding experience watching how Chinese is taught in a variety of settings and how the teachers and students interact in class.

Finally, I would like to express my deepest gratitude to my parents, who have provided me with good opportunities to see and learn in the world and given me much more than I could ever hope to return.

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Abstract

In the present day Mandarin Chinese has become a commonly taught language in the U.S. Mandarin is widely taught in colleges and universities; K-12 Chinese programs, including immersion programs, have also grown rapidly. However, to date little research has been conducted on the latter programs. This study examines immersion programs in elementary schools. I investigate three aspects: 1) teaching methods in Chinese immersion programs, 2) acquisition of grammatical patterns, and 3) computer assisted methods for character learning. I adopted a qualitative approach; the methods I employ include observation, interviews, questionnaires, and tests. Data were collected from two immersion programs and two non-immersion programs in a Southwestern city in the U.S.

The first study compares the teaching methods used in Chinese immersion and non-immersion programs. It is found that the two immersion programs adopted the functional approach with explicating in each class time, while the non-immersion programs used the analytical approach with practicing in context in most classes. The immersion students produced spontaneous speech in each class, while non-immersion language class students did not. The second study examines how immersion learners acquire the *ba*-construction and time phrases. We found that immersion students produced not many *ba* sentences but a large number of time phrases. However, in terms of accuracy, *ba* sentences were produced almost flawlessly, while time phrases were often placed incorrectly in a sentence. This result is quite different from what we find in adult learners who mostly acquire Chinese in a non-immersion setting. It shows that immersion learners' acquisition differs from both L1 acquisition and L2 acquisition by adults. The third study investigates how computer-assisted methods help students learn Chinese characters. I compare immersion learners with heritage learners with respect to how they respond to computer-assisted methods. No difference is found between the two groups of learners in terms of their performance in character recognition, pronunciation and writing. It is also found that while computer assisted materials helped with character recognition, it did not help with character writing.

CHAPTER 1: INTRODUCTION

In the past 20 years the number of Chinese language learners in the U.S. has increased dramatically. According to Wang (2012), the Chinese language course enrollment in U.S. colleges grew close to 80% between 2002 and 2009. In K-12 schools the growth is even more dramatic. The American Council on the Teaching of Foreign Languages ACTFL reported a growth of 195% between 2004 and 2008 in Chinese language programs of. Although at the present time a large portion of the Chinese learners is K-12 students in the U.S, most of the research on L2 Chinese has been conducted on college students, with very little study of K-12 programs (Ke, 2012, p. 98). We know even less about K-12 immersion programs.

The purpose of this study is to investigate Chinese language teaching and acquisition in immersion programs. My focus is on immersion programs in elementary schools. I will examine three aspects of Chinese immersion programs: 1) comparison of pedagogy between immersion programs and non-immersion programs, 2) acquisition of grammatical patterns, and 3) computer assisted methods for character learning. Data were collected from two immersion programs and two non-immersion programs in a Southwestern city in the U.S.

To start out, below I will first briefly review developments of two areas that are the central concern of this study: the development of Chinese language teaching in the U.S. as well as the development of immersion education.

1.1 Chinese Language Teaching in the U.S.

According to Wang & Ruan (2016), the history of Chinese language teaching in the U.S. can be divided into four time periods: 1) 1871- 1940; 2) 1940 – 1960; 3) 1960 – 2000; 4) 2000 –

present. The information that I report below is mostly extracted from their study. In the first time period only few universities offered Chinese language class, such as Yale University, Harvard University, California State University, the University of Chicago, and Stanford University. In the time period, there were limited students, and most of them were Christian missionaries or the people who were interested in sinology (Wang & Ruan, p. 18). As for non-college schools, Yao & Zhang (2010) stated that from 1848 Cantonese classes appeared in a few big cities in the U.S. in order to meet Chinese laborers' demand. In 1870 there were Chinese schools for heritage students in San Francisco, and in 1874 there were Chinese schools that taught classical Chinese in Connecticut (p. 774). According to Liu (2010), the first Chinese heritage language school in the US was founded in San Francisco. The language taught was Cantonese. In 1920s, more than fifty Chinese-language schools, including public and community-based schools, were around for Chinese Americans.

In the second time period, because of World War II Chinese was offered to the military. The number of the universities that offered Chinese classes increased to 25 in 1957. In the third time period, Chinese programs developed differently at the college level and K-12 level. The number of K-12 programs went up and down, while college programs continued to grow. In 1970, 230 high schools had Chinese classes, but the number of Chinese students decreased to 1,345 in ten states (Yao & Zhang, 2010, p. 776). However, because of the problem of funding, in 1982 only two high schools offered Chinese classes. Although around 60 high schools received funding to establish their Chinese programs during 1982-1992, only a few schools still offered Chinese class by 2000. However, in 1993, College Board decided to have SATII Chinese test that is offered to students who have studied Chinese for – two to four years at secondary school,

and the results can be submitted when applying for university. This greatly influenced Chinese teaching at secondary school; it was a milestone in K-12 Chinese teaching (Yao & Zhang, 2010, pp.776-777). At the college level, in 1973, 39 states offered Chinese programs in 260 higher education institutions, and it increased to 486 in 1990; the student enrollment increased from 6,238 in 1970 to 19,490 (Wang & Ruan).

In the current period, Chinese programs have been rapidly developed at both college and K-12 levels. Because of the efforts of American government, from 2006 Chinese programs of the National Security Language Initiative (NSLI) appeared, such as "STARTALK, Foreign Language Assistance Programs (FLAP), NSLI-Youth (NSLI-Y), the language Flagship Program of the National Security Education Program (NSEP), and the pilot National language Corps under NSEP (Wang & Ruan, p. 21)." STARTALK is one of the most successful programs to promote K-16 students' Chinese learning. Based on the 2008 Chinese Field Report, from 2007 to 2008, the number of summer programs that were supported by STARTALK increased from 25 to 55, while the number of high school students who participated in the programs increased from 944 to 1,884 (p. 2). In 2013, there were more than 35,000 STARTALK students in 48 states. Chinese government also provided financial and technical support to teach Chinese in K-20 in the U.S.; they have established 542 Confucius Institutes and classes in the U.S. by 2014). During this time, U.S. high schools also started to offer AP Chinese courses. The following paragraphs will present more detailed evidence of the rapid development of Chinese programs in both college and K-12 level.

In the present day Mandarin Chinese has become one of the most commonly taught languages in the U.S. According to Wang (2012), while college level enrollment in Chinese was

only 1,844 in 1960, it went up to 34,153 in 2002; by 2009 the enrollment had increased to 60,976. Chinese became the 7th most commonly taught languages in college, with 3.6% of language course enrollments being Chinese (table 1). As for K-12 enrollment, in 1990, the Chinese enrollment was only 6,738 in US public high schools. The enrollment increased to 59,860 in 2007-08 school year, from 20,292 in 2004-05 school year (Wang, 2012, p.28-29). That is, the K-12 enrollment more than doubled in three years.

Table 1:
Top 10 commonly taught languages in 2009

Language Enrollment	Enrollment	Percentage
Spanish	864,986	51.4%
French	216,419	12.9
German	96,349	5.7
ASL	91,763	5.5
Italian	80,752	4.8
Japanese	73,434	4.4
Chinese	60,976	3.6
Arabic	35,083	2.1
Latin	32,606	1.9
Russian	26,883	1.6

(Furman et al., 2010, cited in Wang, 2012, p.28)

Study abroad is also an important part of Chinese programs. Based on the data of Open Door on the website of Institute of International Education, the number of U.S. students in mainland China has rapidly increased from 2002. In 2005 mainland China became the fifth place of destinations of U.S. study abroad. In 2011, the number of U.S. study abroad students in China was 14,887, while United Kingdom attracted 33,182 U.S. students, which has been in the first place of U.S. study abroad in history. Although after 2012 the number of U.S. students in mainland China slightly decreased, mainland China still kept the fifth place. This number does

not include the U.S. students in Hong Kong and Macau. In addition, there were also U.S. study abroad students in Taiwan.

As for heritage students, Yao & Zhang (2010) said that Chinese School Association in the United States mainly works for the immigrants from mainland China and served for more than 60,000 students in more than 300 schools in 42 states, and National Council of Association of Chinese Language Schools mainly works for the immigrants from Taiwan and served for more than 100,000 students in more than 1000 schools in 47 states (p. 779).

The above report shows that currently there are 60,000 or more students learning Chinese in the U.S. both at the college level and at the K-12 level. This is a large number. It underscores the importance of understanding how Chinese is taught in various programs in the U.S. and how it is acquired by different types of learners. Recent research has made much progress in this area, but much more needs to be done.

1.2 Language Immersion Programs

The term "language immersion" was first used in October 1963, for an English-French program where English native children attempted to learn French at Margaret Pendlebury Elementary School in Canada (Fortune & Tedick, 2008, p. 5). During the same period, the first two-way Spanish-English bilingual program was introduced at Coral Way Elementary School in Miami-Dade County in Florida in the U.S. Later on, this model spread to the rest of Florida and the U.S. (p. 5-6). Fortune & Tedick (2008) noted that at this time there were 18 languages of one-way immersion programs in the U.S., including Spanish, French, German, Arabic, Mandarin, Russian, and indigenous languages in 33 states (p. 6). Two-way bilingual programs did not develop as early as one-way immersion programs though federal and state funding started

to support educational research in two-way immersion models from the mid- to late- 1980s, and two-way bilingual programs have rapidly increased in 1990s (p. 7).

Based on Weise's (2013) study on the website of Mandarin Immersion Parents Council, the first Chinese immersion program was established in San Francisco's Chinese American International School in 1981. In 1991, the second Chinese immersion program opened in Pacific Rim International School in Emeryville, CA. From 2000 to 2006, the number of Chinese immersion program increased from 10 to 23. From 2007, the number of Chinese immersion program rapidly increased from 38 to 147 in 2013, which were in 26 states and the District of Columbia. 37 of the 147 immersion programs were in California, and 26 were in Utah. 113 of the 147 immersion programs are in public school, including 18 charter schools, while 34 were in private schools.

Based on the full Mandarin Immersion School list (2017-07-29) on the website of Mandarin Immersion Parents Council, at the present time there are 241 Chinese immersion programs in the U.S. California has 59 Chinese immersion programs and is still in the first place. Utah is in the second place and have 45.

Based on the same list, the first Chinese immersion program in Arizona, where my study was conducted, was established in Gavilan Peak School in Anthem. Currently there are ten Chinese immersion programs in Arizona. One of the immersion programs is in a private school, another one is in a charter school, and the rest are in public schools.

In K-12 schools, immersion programs have multiplied rapidly in order to keep up with demand of learning a second language. According to the 2011 report of the Center for Applied Linguistics, during the last 40 years, from 1971 to 2011, the number of K-12 schools that have

immersion programs increased to 448 from 3.There were a total of 528 immersion programs (2011 Annual report, pp.30-31). Of these, 71 were Mandarin immersion programs, which accounts for 13% of all immersion programs. This made Mandarin Chinese the third most common language with an immersion program for instruction. The first was Spanish, at 45%, and the second was French, at 22% (2011 Annual report, pp.30-31).

Table 2:
Percentage of immersion programs by language of instruction, 2011

	Language	Percentage
1	Spanish	45
2	French	22
3	Mandarin Chinese	13
4	Hawaiian	6
5	Japanese	5
6	German	3
7	Other (16 languages)	6

(2011 Annual Report, p.31)

1.3 Plan of the Present Study

While there has been a steady increase in U.S. based Chinese language education programs for K-12 over the past several years, with a corresponding increase in Chinese language immersion programs, very little research has been conducted on Chinese language pedagogy for this level. In this study I will investigate immersion programs by evaluating the pedagogy used in immersion programs, observing learners' acquisition of grammar patterns, and examining how effective computer assisted methods are in learning Chinese characters.

I conducted three studies, which represent three different aspects of immersion programs. The first study investigates the differences between Chinese immersion and non-immersion programs, and finds out if the differences show advantages of practicing and using language in authentic contexts. The second study examines the effects of this approach by observing Chinese

immersion learners' acquisition of the *ba*-construction and time phrases. The *ba*-construction represents a difficult grammar structure, which does not have a corresponding structure in English, while time phrases represent a relatively easy grammar structure. The study shows how contextual learning provides a gateway for students to hear and practice the structure, and then begin to comprehend proper usage. The third study discusses computer-assisted methods for teaching Chinese characters. Chinese characters provide relatively fewer phonological clues (DeFrancis, 1984; Everson, 1994), therefore learning characters is difficult for learners, including immersion program learners who have a high Chinese input in authentic contexts.

In chapter 2 a literature review of bilingual programs and immersion program is presented, along with previous research of Chinese heritage language and Chinese immersion programs. This is followed by a chapter of methodology, chapter 3, which introduces participants and the methods used in this study. Chapter 4, 5 and 6 present the three studies respectively. Chapter 7 is the conclusion with implications.

CHAPTER 2: LITERATURE REVIEW

The U.S. has a long history of bilingual education programs (Garcia, 2005, p. 602), especially Spanish bilingual or dual languages programs. Often, these programs serve speakers of heritage languages. Wiley (2005) defines heritage language as "to refer to immigrant, refugee, and indigenous languages, as well as former colonial languages (p. 595)." Wiley (2005) also states that Spanish speakers were only second to English as the most spoken language in the U.S. In the former Spanish Empire, Spanish was the dominant language much like old English in the former English Empire, and thus is a prominent language in Spain and among settlers in North America from Spain. It spans far enough into history to be an indigenous language among people in the U.S and is also the primary language of Mexico, which provides the majority of immigrants to the U.S. (pp. 595-596). Many researchers of bilingual or immersion programs have focused on language policy, identity, language loss or language shift, because these have been identified as the main problems in minority language programs, that is, identifying impediments to minority language learning or maintaining. This broad literature prompted me to ask whether Chinese immersion programs share similar issues with other minority language programs in the U.S.

In this chapter I will review research on immersion programs. I will start with the background of bilingual education in the U.S., dual language immersion, and types of immersion programs. I will then review research that has been carried out on Chinese immersion programs. We will see that indeed some of the issues that are of concern for research on Spanish speakers have been raised for Chinese immersion programs as well. At the end of the chapter, I will

outline the three studies that will be presented in the following chapters, which focus on Chinese learning in Chinese immersion programs.

2.1 Background of Bilingual Education in the U.S.

The study of bilingual education involves the following fields: language policy, heritage language, identity, language loss and language shift. The issue of language policy is related to the history of heritage languages or minority languages and the languages schools in the U.S. Fishman (2001) uses the term "LOTEs" (languages other than English) (p. 81) to identify heritage languages as relative or family languages. These languages can be indigenous languages, colonial languages, or immigrant languages. Indigenous languages in the U.S. are the languages of Native American tribes and communities. Although historically, the values, beliefs, and community ties of Native peoples have been prohibited through both policy and practice, some scholars have made efforts to support Indigenous language revitalization through offering these languages' classes at the university level (Fishman, 2001, p. 82; McCarty, 2013; McCarty & Zepeda, 2006). Colonial or immigrant languages are the non-indigenous languages that entered into the continent before the United States of America was established, such as Dutch, Swedish, and Finnish, which have long since lost their colonial relationship with their new country (Fishman, 2001, p. 83). Fishman recorded 1,885 ethnic community schools before 1960s, but no public agency was interested in researching them (p. 88). Although governmental agencies have considered heritage languages as a national resource (p. 88), there are issues with the maintenance and instruction of these languages, particularly with attempts by some groups to establish English as the official language (Garcia, 2005; Villa, 2002; Wiley, 2005).

Villa (2002) pointed out that non-English languages, especially Spanish, are the languages that some English only organization have attempted to restrict. The motivation to restrict the use of languages other than English in official spaces is not linguistic but rather ideological. Expressed concerned about language and its use also represent concerns about class, race, culture, and gender, or what anthropologist Jane Hill has called "language panics (Hill, 2001, p. 245)." Villa (1996) also specifically discussed the issue of standard Spanish and clearly stated that "no 'standard' language in the sense of 'uniform' exists (p. 193)." He also strongly believed that the concept of selecting a standard Spanish was not from linguistic analysis but from a political agenda (p. 194). Villa pointed out a serious problem which was documented by many researchers: that more and more U.S. Spanish speakers shift their language from Spanish to English because Spanish speakers might not maintain their individual dialectal varieties, due to some attempts to standardize Spanish speakers' Spanish (p. 195). This problem that Spanish speakers face represents the situation of other non-English speakers in the U.S. Indeed, as I began my study of Chinese immersion classrooms, I wondered if similar complex language ideologies might be present among students acquiring Chinese as a heritage language.

2.2 Bilingual Models in the United States

Bilingual education has not been supported by the U.S. government (Wiley,2005; Garcia, 2005). Educational enterprises which supported bilingual programs to include English and Spanish learners have used dual language programs. However, the No Child Left Behind Act treated non-English languages in the U.S. as controversial topics (Wiley, 2005, p. 595), and essentially stands for "English monolingual imposition (Garcia, 2005, p. 604)." As Christian

(2010) summarized, because of "colonial histories, political changes, and ideological factors" language policy is a complicated issue (p. 6).

As a result, non-English languages speakers in the U.S. and educational enterprises have to struggle to maintain and protect teaching non-English languages in the academic area and the rights of non-English languages in society. Baker (2007) points out there are two types of bilingual education, transitional and maintenance bilingual education, and both affect minority language students. The aim of transitional bilingual education is to maintain an English dominant society and shift minority students' language to English, while maintaining bilingual education attempts to protect minority students' native language, native cultural identity, and rights of being an ethnic minority group member (p. 213).

From the perspective of the means of teaching a target language, bilingual language education includes both teaching a target language directly and teaching a target language through using the language to teach academic content. From the standpoint of perceived target language value, there are programs that attempt to shift minority students' native language to the majority language – English; programs that attempt to maintain minority students' native language; and programs that attempt to teach majority students minority languages. The next two sections discuss immersion programs and heritage languages respectively. I will discuss types of immersion programs in the following section. Then, I will identify which types Chinese immersion programs belong to, and whether the main issues in other bilingual programs are the key issues for Chinese immersion program.

2.3 Immersion Programs

2.3.1 Types of immersion programs

Immersion programs have been classified into different sub-types by different scholars, but as we will see below, a major distinction is between one-way and two-way programs.

Fortune & Tedick (2008) stated the characteristics of immersion programs as using the target language to teach academic content in preschool or elementary school (p. 9). The difference between immersion and other language programs is that immersion programs teach the content in the target language. They identified three main branches of immersion programs: one-way foreign language or immersion for majority students to learn a second language; bilingual or two-way immersion programs for majority and minority students to learn the other language, and one-way indigenous immersion for Native Peoples to learn their language and culture.

Christian (2011) identified four types of dual language programs: 1) developmental bilingual programs, also called maintenance bilingual education or one-way immersion, which use the additive approach of transitional bilingual education that only has minority languages students and is a transition to English while using students' native languages to learn academic subjects and English in a limited time; 2) foreign language immersion programs or one-way immersion that primarily has English native speakers who are learning a second language; 3) heritage language immersion program is to help the students who came from minority community or have a cultural or linguistic tie to a minority ancestor acquire the minority

language; 4) two-way immersion programs that have half majority students and minority students to balance the two languages in class, including class time and curriculum (p. 4).

Baker (2007) further divided two-way immersion programs. Two languages of the dual language program can be used for different days or different lessons. For example, one language can be used on Mondays, Wednesdays and Fridays, and the other one can be used on Tuesday and Thursdays. Then, in the next week it will be reversed. Or, one language can be used to teach science, and the other language can be used to teach math. The aim of different ways of language distribution is to balance the amount of time using different languages in the teaching process. There are two main models, 50:50 and 90:10, in the U.S. The model of 90:10 means 90% of the language in the teaching process is minority language in kindergarten and 1st grade so that students can have time to develop their English skills. From 2nd grade students start to use more English, and the ratio of minority language to English changes to 50:50. The model of 50:50 means the ratio of minority language to English is 50:50 from an early grade. The balance point of the two languages in teaching may be varied between 90:10 and 50:50 at different academic levels.

Genesee (2008) summarized three types of dual programs: 1) one-way immersion programs; 2) developmental bilingual education; and 3) two-way immersion programs. The differences between one-way immersion program and developmental bilingual education are that students in one-way immersion programs are English native speakers who are learning a second language, while students in developmental bilingual education are minority students who are learning English, although the students in each of these two types of programs are learning a second language. As for one-way immersion programs, Genesee introduced partial immersion

that is to use a minimal of 50% second language in the program teaching; total immersion uses 100% second language in the teaching part of the program; early immersion that starts to use the second language to teach from kindergarten or first grade; delayed immersion starts to use the second language to teach from the middle elementary; and late immersion which uses the second language to teach from early high school (p. 25).

Collier & Thomas (2013) also summarized one-way programs that have only one language group being taught academic content in two languages (p. 2), and two-way programs that have English native students, including minority heritage students who lost their native languages, and non-English native students.

Although scholars did not have exactly the same categories of dual programs, it is clear that all scholars recognized a major distinction between one-way and two-way programs. Chinese immersion programs are one-way foreign language programs that are more closely identified with pedagogical issues.

2.3.2 Research on immersion programs

There is some existing research which discusses teaching methods in bilingual programs. I will discuss three studies here, which cover content-based teaching, comparison between one-way immersion and two-way immersion, and comparison between two-way immersion and traditional English classes

Genesee (2008) introduced content-based language instruction designed to teach academic content in the target language, which is the key point of dual language programs. Genesee (2008) expounded that this approach fully utilized children's natural abilities of learning

languages. However, Genesee (2008) also pointed out that some immersion students could not successfully master the grammar of the target language, "such as verb tense, pronouns, prepositions and sociolinguistic forms (p. 33)." He further explained that linguistic competence might not be improved by extending the time of self-using the target language, because functional and structural skills do not equal linguistic competencies (p. 33).

Steele et. al. (2015) compared one-way and two-way dual language programs and attempted to test the following: 1) the causal effect of random assigned immersion students' performance in English language art, math, and science; 2) the effective difference between one-way and two-way immersion programs, and the difference between Spanish and three other language programs: Mandarin, Japanese, and Russian; 3) effective difference on whether student's first language is English. They focused on causal effects of immersion programs in Portland public schools, which included one-way versus two-way immersion programs and involved four languages, Spanish, Mandarin, Japanese, and Russian. The study used the results of state-mandated accountability tests of reading, mathematics, and science to compare 3,457 students' performance, from third grade to ninth grade. The analysis did not show significant effect of immersion in math and science. As for the second research question, the effective differences among different language programs and between one-way and two-way immersion were not significant. The results show that Spanish programs and two-way immersion were better than other programs, and the former outcomes are slightly greater than the. As for the third research question, there is no significantly difference between English native speakers and non-English native speakers, except for eighth grade math. In sum, the effect of language in immersion programs is slightly larger than the effect of type of programs (one-way or two-way).

Li et al. (2016) compared two-way dual language and traditional English classrooms regarding teaching practices and the extent of each dual language that teachers and students intended to use. Through classroom observations during two academic years, they found that in two-way dual language the teachers nearly fully used the target language during the observed class time, and the students had enough opportunities to speak the target language, but this did not extend to using the language that the students actually speak. In addition, the students had fewer opportunities for writing than speaking. This study also found that the target teaching practices, including lesson preparation, building background, comprehensible input, learning strategies, interaction, practice and application, lesson delivery, review and assessment (p. 36), were consistently implemented. However, Li et al. (2016) concluded that the teaching practices in traditional English classes and in two-way dual immersion classes were not systematically different, and the academic benefits of dual language immersion came from the acquisition process in two-language classroom instead of teaching practices (p. 40).

After reviewing the research of the content-based teaching approach, the comparison between one-way immersion and two-way immersion, and the comparison between two-way immersion and traditional English class, we may start to think about the difference between one-way immersion and non-immersion class from the perspective of pedagogy, especially for Chinese language. What are the differences between the different kinds of Chinese classes, Chinese immersion, non-immersion Chinese class and Chinese weekend school? What strategies are used in the different classrooms, such as teaching characters, vocabulary, and speaking? What is the role of the teachers, students, and parents? What learning resources, such as software, do they have access to? What are students expected to do outside of the classroom?

Although Genesee (2008) pointed out that some immersion students' grammar knowledge might not be good, the acquisition process of Chinese immersion students has not been studied by previous research. I would like to know what the learners acquired during a specified time period; and in the process what the difference between immersion students and non-immersion language students was.

2.4 Heritage Languages and Chinese Heritage Language

Undoubtedly, bilingual education is related to heritage language learning. Although Chinese immersion programs are one-way foreign language immersion programs in the U.S., Chinese is also a heritage language in the U.S. The majority students in Chinese immersion programs are not Chinese heritage students, and some Chinese heritage students learn Chinese in weekend schools or at home. This situation is different from other dual languages immersion programs, such as Spanish-English, which have heritage students in the immersion programs. This situation provides an opportunity to compare immersion students and heritage students in order to evaluate immersion programs. Are they different or similar in the four language skills, listening, speaking, reading, and writing? Do they encounter the same challenges? In this section, I review the research on heritage language and Chinese heritage programs.

Wiley (2005) stated that heritage language implies "immigrant, refugee, and indigenous languages, as well as colonial languages (p. 595)." Juxtaposed with "majority language," "heritage languages" refers to the past or tradition in comparison with the term "community language" which includes the present and future (p. 596). Garcia (2005) who studied heritage languages in the U.S. also stated that heritage languages imply something that is not in the

present but something in the past or for old generations (p. 601). However, Garcia also pointed out that the term "heritage language in education" reminds educators, parents, and children that there is a space to teach with languages other than English (p. 602).

The implication of "heritage languages" reflects the power of different languages in society, which led to non-English native people's selection between their native language and the majority language – English. Therefore, language shift or language loss is an important issue when scholars study heritage languages. Besides languages' power in society, the issue also involves other factors that interact with each other, such as language policy, educators', parents' and the community's attitude or reaction to heritage languages, and bilingual people's identity.

Fillmore (2000) conducted a case study of a Chinese immigrant family in the U.S. to analyze language loss and language shift. She described the language change of four children in a family during more than 10 years after they came to the U.S. Two children in the family when they arrived were ages 5 and 4, and the other two were born in the U.S. In the family, the parents, the uncle, and the grandmother, each spoke Cantonese; they did not speak English. The one who came to the U.S. at age 4 was sociable and did not have difficulties with classmates or teachers. She could still speak her native language with her family and translate for her parents and grandparent to her siblings, but she was not as fluent as before. The other one who came to the U.S. at age 5 was totally different. He was not accepted by his majority language classmates and hung out with other Asian immigrant children. He refused to speak his native language with his family. The other two who were born in the U.S. did not know how to speak Cantonese to their grandmother and parents. The four children spoke English to each other. Fillmore (2000) said that the language loss and shift reflected children's change in language loyalty (p. 208);

English represented an ideology (p. 207), as children did not want to be considered unacceptable by the majority (p. 209). She pointed out that language loss and shift meant a disconnection between the children and their family and their original ethnic knowledge and culture, and questioned whether the children had a successful education because they were using English. This study presented Chinese heritage students' language shift or loss and its reasons, which is similar to other heritage students.

Besides the issue of identity, bilingual programs as a way to help non-English children maintain their native language have been discussed for a long time. Fillmore (1991) examined the issue of maintaining non-English native language by interviewing language-minority families whose children were in preschool programs. She came to the conclusion that children lost their native language because they learned English (p. 341). However, she stated that second language learning itself cannot lead to first language loss, and the reason for first language loss is the society's lack of value for linguistic or ethnic diversity (p. 341). She pointed out that families played an important role against the assimilative forces that led to language loss (p. 334), but the fact that parents judging their children's native language proficiency also led to children's language loss (p. 339). The study showed that many parents worried that their children would lose their home language.

When it comes to Chinese as a heritage language in the U.S., only a few scholars have studied Chinese heritage students. The research that has been conducted so far focuses on the effect of students' motivation to learning Chinese with its culture; parents' attitude towards language learning program; and character learning. I will briefly review each area below.

He (2008) pointed out that learning Chinese as a heritage language meant not only knowing the grammar but also contextually understanding the linguistic structures, which is related to Chinese culture. Moreover, Chinese heritage leaners should have motivation to value the language in order to learn it well. Concerning the issue of identity, He (2008) expounded that the identity issues Chinese heritage learners faced in their social life every day (p. 4) are the same as for other heritage languages learners. She agreed with previous studies that positive attitudes toward ethnic identity and ethnic groups helped Chinese heritage learners achieve high level language proficiency. Lee (2002) conducted a survey to look into the relationship between students' attitude and their language learning. She collected data from two high schools that included 105 U.S. born Chinese-American and Korean-American students. The results showed that the students who valued their native culture, identity, and language had more success not only with language learning but also in academic achievement levels than the students who had a strong proclivity towards the assimilation process. These results are similar to the findings of He (2008) in that positive attitude towards native culture (Chinese culture) helps students learn the language.

Regarding parental attitude, Lao (2004) surveyed 86 parents whose children were in a Chinese-English bilingual preschool. 70% of the children were Chinese Americans, and the rest came from other ethnic groups. Lao (2004) concluded that the parents did not feel bilingual programs are a good way to achieve higher levels of English proficiency, although they strongly supported bilingual programs. Liu (2008) and Lu (2001) conducted a study on a Chinese Sunday school. Liu (2008) surveyed 28 heritage students; it was found that all the parents and the students had positive attitudes towards learning Chinese, and that parents played an important

role in supervising their children's learning Chinese. Lu (2001) did another study on a Sunday school. She interviewed 35 parents whose children were in the Sunday school. She three reasons that parents sent their children to learn Chinese: 1) identity as Chinese; 2) the hope their children can communicate with their grandparents and other relatives; 3) future job opportunities. The parents reported that their children became confident and proud of being Chinese after learning Chinese language and culture (p. 211), which reflects the bilingual children's self-identity. However, the parents did not identify themselves as a part of Chinatown, which represents an old and different self-image, or being related to Chinatown (p. 213). Law (2014) conducted a study on the effect of families and community in children's Chinese learning in the U.S. The study came to the same conclusion that family played an important role in children's native language acquisition in a community with another majority language, but the parents may not have enough knowledge of bilingual education or language maintenance (p. 740). Many families depended on weekend school to teach the home language due to lack of bilingual teaching programs (p. 738). However, Liu (2008) mentioned that some students did not really value Chinese language learning and just did what their parents wanted them to do, which presents a problem in the process of learning and maintaining their native language (p. 46).

Besides the issue of identity, He (2008) also pointed out the difficulty of Chinese character learning, which is different from other heritage language learning. This is also discussed in Liu's (2008) study. Liu raised four main problems learners encounter: writing, reading, insufficient time to study, and unattractiveness of the Chinese class. The students especially mentioned that they did not like the rote-learning method, such as copying Chinese characters and memorization. Law (2014) pointed out that rote memorization may not be an

effective way to learn characters. The issue of teaching methods and content was also presented in other research. In Lu's (2001) study, the parents also expressed the desire to have a better curriculum that includes more history and culture lectures with videos or other attractive methods (p. 214). Lee (2002) also mentioned that Asian-Americans need to receive more input in regards to history and culture (p. 333).

In sum, learning Chinese as a heritage language in the U.S. faces the same issues as other heritage language learning. Chinese heritage students need to identify themselves. This may lead them to have either a positive or negative attitude towards learning Chinese, which may help or impede in the learning process. Parents or families played an important role in the process of maintaining the native language, culture, and identity, and preventing their children from suffering language loss or language shift. Parents are able to recognize that maintaining the native language is beneficial for their children, the family, and ethnic group, so they help their children learn their native language while they learn English. However, some parents might not recognize the function of bilingual programs and instead may prefer English only programs to efficiently improve their children's English. Teaching methodology should include how parental involvement impacts learning, attitude, and motivation toward the language and the learning process. Besides these similarities with other heritage language learning, Chinese heritage students' difficulties in reading and writing drew attention. Chinese does not possess an alphabetic writing system and therefor does not provide phonological clues for writing or reading (DeFrancis, 1984; Everson, 1994). From this perspective, Chinese heritage students and Chinese immersion students are similar: they might have high Chinese aural input but they still have difficulties in learning characters.

2.5 Chinese Immersion Programs

Chinese immersion program is one-way immersion. Based on the full Mandarin Immersion School list (2017-07-29) on the website of Mandarin Immersion Parents Council, there are 241 Chinese immersion programs in the U.S. A big portion of these immersion programs is in kindergarten to fifth grade. In addition, most of the programs were established in public schools. California has 59 Chinese immersion programs in the first place, and Utah is in the second place. However, some states did not have it. Research that has been conducted on Chinese immersion programs focuses on the following issues: attitude and motivation, teaching strategies, short term immersion, pedagogy, challenges, and reading. I will briefly review each topic below.

2.5.1 Attitude and motivation

First, concerning learners' attitude and motivation, Bodey (2016) conducted a case study with three Chinese immersion students in a middle school. All three students had good performance in the immersion programs, and they shared some characteristics: very positive attitude towards learning Chinese, having good methods of learning Chinese, did not have any negative image of the Chinese immersion program, and their parents were motivated to support them learning Chinese. Tang (1998) conducted research on the relationship between parents' motivation and Chinese immersion program in a kindergarten through interviews, questionnaires, and language tests. The results confirmed the positive effect of parents' attitude towards the program and the influence on administrators. The findings also support the view that an immersion program is an effective approach to teach Chinese and it does not hurt students' other

grades, such as math and English. This is consistent with the research findings of other language immersion programs. Simith (2007) conducted research on Chinese language at elementary schools by interviews, observation, and a survey on students, teachers, and administrators in three elementary schools. The purpose was to find the factors of an effective immersion program. He did not find problems with a lack of motivation in the three Chinese immersion programs. Based on these studies, attitude and motivation is not a controversial issue in Chinese immersion programs.

2.5.2 Teaching strategies

Next, we consider teaching strategies. One strategy that has been used in immersion programs for young learners is to incorporate music in language teaching. Zhou (2013) examined the effect of singing in kindergarten Chinese immersion programs from three school districts in Michigan. Both control groups and treatment groups spent a half of school day in Chinese and the other half school day in English. In the experiment, a story was learned 25-30 minutes each day and it lasted for a week. The participants included one hundred and six immersion kindergarten learners, who were put into two groups, one group listening to a story with its song and following along singing, the other group only listening to the story. Through pre-test at the beginning, immediate post-test at the last lesson of the experiment, and a delayed post-test 16 days after the immediate post-test, the results show that singing songs can help learners acquiring and retaining vocabulary. Wang (2014) also investigated the role of music in learning vocabulary in a Chinese immersion preschool. This study has one treatment group that was taught five words using pictures and song and one control group that was taught the same words with

pictures but no music. Through pre-test and post-test, it was found that the control group learned more words than the treatment group. These two studies focus on immersion programs, but the teaching strategies that they discuss cannot represent the characteristics of immersion programs, as these strategies with music can also be used in non-immersion programs. Thus, the teaching strategies that are specific for immersion programs are still needed to be concerned, especially at a pedagogical level, which this study investigates.

2.5.3 Short term immersion programs

There have been studies that look at Chinese learning in short term immersion programs, such as summer immersion programs. Beard (1994) studied a three-week Chinese immersion program with 25 second-grade heritage students together with two other immersion programs that focused on Spanish and English respectively. This study discussed the activities in the programs with the teachers' description and comments. He found that the immersion programs helped the students have motivation to internalize their original culture and communicate with other people in the community. He also pointed out common characteristics of the three languages' immersion programs: they all provided resources of the target language and its cultures, and they all helped building relationships between the learners and their teachers or people in their original community. Chen (1995) studied learner's difficulties and language learning strategies in a nine-week intensive program with 13 American students, which is a semi-immersion program. She conducted surveys, interview, observation, and case studies. She found that short-term memory strategies were commonly used by the students in order to accomplish a great amount of assignments in a limited time. She also found that the less successful students

used more strategies than more successful students, which are direct strategies that include memory, cognitive, and compensation, and indirect strategies that include metacognitive, affective, and social strategies (Chen, pp. 20-21). Liu (1992) discussed the interaction between teacher and students in a two-month summer immersion program from both teacher and students' perspectives. She used observation, interviews, notes, and journals to analyze one teacher and her three students in the program. She pointed out three issues of language learning in immersion program: language fluency vs. accuracy, knowing the language vs. using the language, using language in school vs. using language in society. Chao (1993) investigates two adult learners in a nine-week immersion program by focusing on learner's role. He documented the experiences of these two adult learners' experience in the immersion program. The results show the importance of learning environment, teaching instruction, as well as learners themselves in the process of language learning.

2.5.4 Pedagogy

There have been several studies that discuss pedagogical issues in Chinese immersion programs. Wang (2008) examined how the immersion approach was applied in class based on five characteristics: (1) who were the main speakers; (2) the purpose of the communication in class; (3) if the communication involved non-linguistic content; (4) when students spoke in class, this was to practice or repeat the sentence structures or for real conversation; (5) what the talking areas were (pp. 44-45). Four grades (2^{nd}, 4^{th}, 6^{th}, and 8^{th}) of a Chinese immersion school were investigated through observation and interviews. The following features were found in the

immersion classes: comprehensive input and comprehensible output in real conversation through using content-based instruction (p. 151).

Yao (2016) investigates the effect of corrective feedback in Chinese immersion classrooms. To examine how teachers corrected their students' errors, Yao used observations, video-tapings, stimulated recalls and interviews. It was found that in the process of correcting errors, both the teachers and the students were involved in negotiations that include different contexts. In the negotiations, students spontaneously produce modified and non-modified output. The results also show that content-focused interaction has an effect on students' awareness.

Jacobson (2013) evaluated seven aspects of Chinese immersion programs based on an evaluation model, which presents values and criteria of "class context, input, process, product evaluation, institutional values, pertinent technical standards, duties of personnel, and idiosyncratic criteria (pp. 69-70)." Through interviews, survey, and analysis of students' academic performance, which includes final grades and the results of a standard Chinese proficiency – Youth Chinese Test (YCT), Jacobson collected data from administrative stuff, immersion teachers, and students. The final grades of 272 students from kindergarten to 5th were analyzed. At the time of the research, three different grades students (3rd, 4th, and 5th) were compared. The students of 2nd grade and 3rd grade took YCT. The findings show that the immersion students had higher academic scores than non-immersion students in each grade. In fact, the immersion students had significantly higher scores of math than non-immersion students in this school and other comparable schools. All administrative stuff and 78% teachers thought the program followed the design and achieve the goals. In addition, based on the results of YCT, the immersion program with diverse students did not differ significantly from the immersion

program with less diverse students. This study thus provides evidence that immersion programs do not hurt students' academic performance, which was also found in research of different language immersion programs.

Fortune & Song (2016) investigated Chinese immersion students' academic outcomes, and found the same results – Chinese immersion students' scores of English and math on the state's standardized tests were the same as or higher than non-immersion students at 5th grade. To find out students' Chinese proficiency, they gave the students' four tests: 1) YCT, 2) SATndards-based Measurement of Proficiency 4 Skills elementary (STAMP 4Se), 3) the Student Oral Proficiency Assessment (SOPA), and 4) the Center for Applied Linguistics' Oral Proficiency Exam (COPE). They found that all 3rd grade students achieved an intermediate level. Listening was the strongest skill, followed by speaking, and these two skills were much better than writing and reading. A big portion of 5th grade students' Chinese character writing and reading were at the Novice range and over half were at Intermediate-Low, while their listening and speaking performance were solidly at the Intermediate level (p.190). Fortune & Song explained that the results have to do with the characteristics of the Chinese language and students' curriculum, but they did not offer an analysis of how students learn language skills.

2.5.5 Challenges

Chung (2015) investigated a dual language immersion program in an elementary school from stakeholders' perceptive and focuses on benefits and challenges of immersion program, the effects on students; the parents' expectation, and academic performance. Chung interviewed 24 participants who were administrative stuff, teachers, and parents. The results revealed the challenges of the immersion program: the demand of appropriate program structure; turnover of teachers; the lack of teaching resources. Cao (2013) also studied challenges of Chinese

immersion education by interviewing the educators of a preschool Chinese immersion program. It was found that Chinese immersion programs did not solve the problem of students' learning in reading and writing. Cao also emphasized the importance of teaching Chinese culture.

2.5.6 Reading and character learning

Lv (2016) investigated Chinese character reading and text reading by comparing 2nd grade Chinese immersion students and weekend school students. The results show that Chinese immersion students made more progress than weekend school students. Lv provided an explanation: immersion students had more class time on Chinese than weekend school students. However, Lv did not explain the relationship between the input in immersion classes and the progress that immersion students made in reading. Thus, the advantage of immersion program in character learning was not proven.

2.5.7 Summary

In sum, previous research of Chinese immersion programs have been concerned with a number of issues, including attitude and motivation, teaching strategies, short-term immersion, pedagogy, challenges, and reading and character learning. The research that discussed pedagogy focused on specific features of these programs, the advantages of content-based instruction, and the evidence that immersion programs do not have negative effects on students' academic performance. The findings of these studies are similar to the studies that were conducted on other languages immersion programs such as Spanish. These studies mostly did not discuss the process of Chinese learning in Chinese immersion programs, except for two studies. Cao (2013) pointed

out that Chinese immersion program did not solve the problem of learning how to read and write, and Lv (2016) presented the progress that immersion students made in reading. However, these two studies do not analyze the reason or solution from a pedagogical perspective.

In this study, I will conduct three studies. The first study discusses the differences between immersion, non-immersion, and weekend school classes based on language pedagogy. The second study discusses acquisition of the *ba*-construction and time phrases in an immersion program. The third study discusses computer assisted materials in learning Chinese characters. The reasons for choosing these three studies are the following. I am interested in exploring what research had been done in Chinese K-12 immersion programs, or indeed, whether they would interfere with or improve Chinese language teaching and learning. I am also interested in observing whether the instructional approaches used to teach Chinese significantly impacted the results of the Chinese immersion program. Previous studies have examined the characteristics of immersion programs including Chinese; there have also been studies on Chinese heritage students. However, a number of questions have not been answered. Frist, what is the extent of the effect of immersion programs? What are the differences and similarities between immersion programs and heritage programs from the pedagogical perspective? Second, how does immersion teaching influence language acquisition? How do learners in the immersion program acquire certain grammar patterns? Third, does the Chinese language present challenges to the immersion program? In particular, how does the program help students with the Chinese writing system?

Thus, I designed the first study to investigate the differences between Chinese immersion programs and Chinese non-immersion programs at the pedagogical level, including classes for heritage students. This answered the first question. The second study examines the effects of

Chinese immersion program in acquisition of Chinese. This explores the second question. The third study explores the third question and discusses computer assisted methods for character learning, an area that presents challenges to the Chinese immersion program.

CHAPTER 3: METHODOLOGY

In this chapter I discuss the methodology used in my study. I present the participants of the study and the materials they used, followed by research methods that I adopt.

3.1 Participants and Course Materials

3.1.1 Participants

Participants for the study include students from four different schools in a Southwestern city in the US: Central Hill School,[1] which has the immersion Chinese language class; South Mountain School, which has the immersion Chinese-math class; West Desert School, which offers non-immersion daily Chinese classes, and Lincoln School, which offers Chinese classes on weekends. This is summarized in Table 3:

Table 3:
Schools and classes where the participants are from

School Name	Type of class
Central Hill	immersion Chinese language class
South Mountain	immersion Chinese-math class
West Desert	non-immersion daily Chinese class
Lincoln	weekend Chinese class

Aside from Lincoln school, where students meet only once 90 minutes per week, the other three schools are regular full day schools.

All four schools participated in the first study - comparison of teaching methods. For the second study, acquisition of two grammatical patterns, only students at Central Hill participated.

[1] The names of schools given here are not real names.

The third study, computer-assisted materials for character learning, was conducted at Central Hill and Lincoln.

The Central Hill is PK-8 school, which includes preschool, junior, and middle school. It offers immersion classes in Spanish, French, German and Chinese. The number of students in the school is about two hundred, and average class size is ten or more. This school is a private school that uses Cambridge international examinations for English, mathematics, and science teaching. The Central Hill School started Chinese immersion program from the 2010-2011 academic year. The Chinese immersion class in the preschool includes preschool and kindergarten students, and the class activities includes math, drawing, singing, Chinese character learning, game, cooking, and other daily life activities in Chinese, which is about half of a school day. The Chinese immersion class in the junior school included first grade to fourth grade in the academic year when I observed. Each week, the students receive 11 hours of Chinese instruction, including discussing daily life issues, singing, drawing, feeding a hamster, learning Chinese culture, and learning Chinese language in Chinese. They also receive 5 hours of English instruction, 5 hours of math instruction, and 4 hours of science instruction every week. There is also time on physical education, art, and music. However, when the Chinese teacher accompanied them to do physical exercises they still used Chinese. In general, they spent almost a half school day in Chinese.

The class that I observed is an immersion Chinese language class with 10 students: three in 1st grade, four in 2nd grade, one in 3rd grade and two in 4th grade. During the semester, one student in the 2nd grade transferred to another school. Only one student in the 1st grade did not go to the immersion Chinese pre-school, while the other nine students entered the program from pre-school.

The South Mountain School is a K-5 school that focuses on math teaching. This school became a public school from a charter school in 2016. The number of students in this school is more than six hundred, and the average class size is twenty or more. The South Mountain School have only one immersion program – Chinese immersion, and it started from 2014. The immersion program is 50:50. The students spend 2.5 hours in Chinese every day, which includes learning math, science, and Chinese, and another 2.5 hours in English. At the time when I observed, the school had immersion classes in Kindergarten, 1st grade, and 2nd grad. There were 24 students in the 2nd grade, 24 students in the 1st grade, and 28 students in kindergarten. All are non-heritage students and speak English at home. The class that I observed is 2nd grade.

The West Desert School, which is a K-12 charter school. It has about two hundred students. In K-5, the average class size is about twenty students. Each class in one teacher's charge combined students at different grade levels, and students' grade level may not be the same as their school year or correspond with their age. For example, it is possible that a student has only studied for one academic year but his academic level is at the 2nd grade. The school offers Chinese language for each class, and the students in the same class that one teacher is in charge of have Chinese classes together. One Chinese teacher teaches 6 Chinese classes each day, a kindergarten class and 5 combined 1st – 5th grade classes. Students have 30-minute Chinese language class respectively every day. The class that I observed had 24 students, including 6 in the 1st grade, 10 in the 2nd grade, 7 in the 3rd grade, and one in the 4th grade. With the exception of transfer students, they all started to learn Chinese from kindergarten. The teacher did not say how many transfer students there were, but she said all the students had had at least one year of Chinese before the semester I observed.

Lincoln School is a school that offers Chinese language and culture classes including Chinese dancing, Chinese painting, calligraphy, Chinese games and sports. All classes are on the weekend. Most students are Chinese heritage students. There are also classes for the general public. I observed a third-year Chinese class, with 10 students. They were all heritage learners. One student was 9 years old, five students were 8 years old, and four students were 7 years old. Two of the ten students came into the class during the academic year. One of the two was in a Chinese immersion kindergarten class and took a year of weekend school class prior to participating in the project. The other started to learn Chinese at another Chinese school when he was 7. The rest of the students have been with the class from the beginning, and this was their third academic year. Five students had no other Chinese class. Three of them had experience in Chinese immersion programs, and one of the three students was still in a Chinese immersion program. Three students have Chinese class every day at their school, and one of these three students also had experience in a Chinese immersion program in 1st grade.

Reasons for home use of Chinese varied. Only one student affirmed they spoke English at home. Eight students speak Chinese at home, but four of the eight admitted that they spoke English when they did not know the Chinese. One student speaks half Chinese and half English at home, because the parents asked him to speak Chinese, but he does not want to. Five of the eight students who speak Chinese at home expressed that they were willing to do so, two said sometimes they wish to speak Chinese, and one stated that she did not want to speak Chinese at home even though she did. Seven students said they learned Chinese because their parents wanted them to. One student learned Chinese because all family members speak Chinese, while one student wants to go to China. Table 4 lists the details.

Table 4

Background information of students in the weekend class

	Age	Chinese background	Chinese at home	Self-evaluation	Willing to use Chinese at home	Reason for learning Chinese
1	9	No other Chinese class	Yes	Good	Yes	Parents
2	7	No other Chinese class	Yes	Good	Yes	Parents
3	7	No other Chinese class	Yes	Good	Sometimes	Parents
4	8	Spends 6 weeks in China every summer since two years old. No other Chinese class.	Yes (not strict)	Not know	No	Parents
5	8	had stayed in China for one year at three years old; no other Chinese class.	Yes	Good	Yes	Family speaks Chinese
6	8	Has one Chinese class every day in elementary school for three years	Yes	Okay	Yes (not know some Chinese words)	Wants to go China
7	8	Has taken three and a half semesters weekend class. In immersion kindergarten for one year.	No	Okay	No	Parents
8	7	Every year back to China to take some elementary school class; in second year immersion Chinese program; teach Chinese at home	Yes (no know some Chinese words)	Good	Yes	Interesting
9	7	80% speaking Chinese at home; 30-minute Chinese class every day in elementary school	Yes (80%)	Good	Sometimes	Parents
10	8	From kindergarten, gradually speaks English at home; Kindergarten and 1st in immersion Chinese program; currently every day has one Chinese class in elementary school	Yes or No	Okay	No	Parents

In addition to students, seven teachers from the four schools also participated in the study. The four classes observed were taught by teachers from mainland China. The other three teachers were interviewed. Two of the three were raised in a bilingual environment outside of China. All these teachers provided information of the students and their programs in either Chinese or English.

3.1.2 Course materials

Course materials for the immersion Chinese language class at the Central Hill School include a set of textbooks and a workbook. The textbook is "小学华文 (Textbook Chinese language for Primary Schools." The books were also used for heritage students in weekend schools in the U.S. and elementary schools in Singapore[2]. In the textbook there are Chinese characters, Pinyin, pictures, and a vocabulary list, but no English. It provides both Traditional and Simplified characters. There was also a workbook, with fill-in-the-blank character exercises. For the lowest level, the workbook also includes other exercises, such as choosing the correct Pinyin. The teachers also passed out handouts in characters and Pinyin. Students had in-class writing exercises and homework. Homework included reading out loud the assigned lesson, and character writing. Level 3 and level 4 students also had homework such as answering questions in characters and writing a simple dairy. In class students used an e-book that corresponds with the textbook, which includes voice reading with color-changed characters, animation, and games

[2] In Singapore there are four official languages (English, Chinese, Malay, and Tamil), students must learn two of them, and one of them must be English. (The Constitution of the Republic of Singapore)

for practicing characters. The teacher also used online videos in Chinese for teaching songs and cultural topics.

In the immersion Chinese-math class in South Mountain School, all math and science materials are in English. When the students or the teacher came across a specific English word they said it in Chinese. In the Chinese language class, the teacher used PowerPoint or cards written in Chinese, sometimes with accompanying Pinyin, and pictures.

The weekend class in the Lincoln School used a set of textbooks that were designed for heritage students in weekend school by a teacher who had extensive experience in teaching heritage students in the U.S. There is text, vocabulary lists, grammar tips, and reading materials. The text and vocabulary lists have no Pinyin or English translation, while the grammar tips have English translation for specific vocabulary. Additionally, the students had workbooks and CD homework. Exercises in the workbooks include a set of true false reading comprehension questions, character writing and sentence writing (which varies depending on the level of study), and dictation to be done in class. The latter has voice reading with color changing character, as well as game-style exercises.

In the non-immersion Chinese class in the West Desert School, students did not have a textbook, but used handouts in character learning class to practice writing target characters. Sometimes the teacher gave each student a textbook and asked them to read a selection related to a given week's topic. The teacher also used computer-assisted materials in class to teach a particular week's topic. The materials included voice reading with color changed characters, game-style exercises, songs, and online videos in English that contain key words in Chinese.

3.2 Research Methods

A number of methods are adopted in my study. Some of the methods are used in all three studies, while some are used in one or two studies only. These are presented below.

3.2.1 Observation

Observation is a major method in my study. It is employed in all three studies; in fact, for the study on acquisition of grammatical patterns (chapter 5), my observation notes are the only basis whereby I report my findings. In each class I observed, I wrote down what was orally produced by students as well as teachers, recorded (by hand) activities the class was engaged in, types of written exercises carried out in class, etc. Thus my observation notes include both learner data (what they produced) and explanatory notes (descriptions of what the students were doing in class). Due to school regulations, audio or video recording were not allowed.

The four Chinese programs were observed from February to May of 2016. Table 5 shows the details of the class observation schedule.

Table 5
Details of class observation (Feb.2016 – May 2016)

School Name	Class Type	Number of students	Regular Attendance	Hours
Central Hill	Immersion Chinese language class	10	Y	At least 4 hours per week
Central Hill	Immersion Chinese language pre-school	13	N	5 hours
South Mountain	Immersion Chinese-math 2nd grade	24	Y	At least 4 hours per week
South Mountain	Immersion Chinese-math 1st grade	24	N	4.5 hours
South Mountain	Immersion Chinese-math Kindergarten	28	N	4.5 hours
Lincoln	Weekend school	10	Y	1.5 hours per week

West Desert	Chinese language class	24	Y	1 hour per week

The immersion Chinese language class at Central Hill was regularly observed twice per week, the entire 3 hours duration of the class one day and 2 hours the other days. The classes on different weekdays do not have the same hours, so the weekdays were observed rotationally. The immersion Chinese language pre-school was observed twice, for a total of 5 hours.

For the immersion Chinese-math class at South Mountain, the 2nd grade was regularly observed twice per week. The class, which were two hours each day, had a Chinese language class portion, a math class portion, and a science class portion. Each day's class did not include all three portions, but every day they did have the math portion in Chinese. The three different class portions were each observed. The kindergarten and the 1st grade were both observed twice.

For the weekend at Lincoln school, classes are held every Sunday afternoon from 4:00 to 5:30 except holidays, and these were observed regularly.

For the Chinese language class at West Desert, the daily class sessions are each 30 minutes. From Monday to Wednesday they focus on vocabulary and sentence structures, on Thursday there is a test, and on Friday they focus on character learning. The classes on Tuesday and Friday were regularly observed.

3.2.2 Interviews and questionnaires

The purpose of the interviews was to get information from the students and the programs as well as the interviewees' opinions of the programs and Chinese learning. Therefore, basically there were two kinds of questions: background information, which includes students' and

programs' background information; opinions of the programs and the process of learning Chinese. Besides informal interviews, I also prepared a set of questionnaires. The questionnaire for parents included what the students did to learn Chinese at home, whether the students had Chinese homework, how they did the homework, whether the parents helped the students to learn Chinese, and so on. The questionnaires were sent to parents and teachers in the immersion Chinese language class at Central Hill and the weekend class at Lincoln school. All teachers of the four classes at the four schools either answered the questionnaire or did an official interview with audio recording. Interviews as well as questionnaires were used for the first study (comparison of teaching methods) as well as the third study (a study on computer assisted language materials). The questionnaires are presented in Appendices A to F.

3.2.3 Tests

Besides observation, questionnaires, interviews, the third and fourth grade students in the immersion Chinese language class at Central Hill and the heritage students in the weekend class at Lincoln school also took tests. There were two pre-tests, which were taken at the beginning of the semester, and a post-test at the end of the semester. These tests were used for the third study, the study on computer assisted teaching materials. The writing portions of the Youth Chinese Test (YCT) level 3 and level 4, an international standardized test of Chinese language proficiency, were used as the pre-tests and the post-test, respectively. The YCT level 3 has Pinyin and all questions are multiple choice. YCT level 4 does not have any Pinyin and includes questions that require writing using only characters.

CHAPTER 4: TEACHING METHODS IN FOUR CLASSES

4.1 Introduction

The purpose of this chapter is to examine immersion classes and other language classes and find out if the teaching methods used in immersion classes are superior than those used in non-immersion classes. After reviewing theoretical framework and related studies, I compare four classes: an immersion Chinese language class, an immersion Chinese-math class, a regular Chinese class, and a Chinese weekend class. I describe the similarities and differences between these four types of classes through observation, questionnaires and interviews. In particular, my research focuses on the way the communicative approach is implemented in these classes.

4.2 Review of Teaching Approaches

Before evaluating the classes that I observed, I first review a number of approaches that have been proposed for language teaching, including the interaction hypothesis, output hypothesis, communicative language teaching, content-based instruction, and approaches to teaching Chinese. These approaches are relevant to the concepts included in the observation checklist that is used to evaluate language classes. Several concepts are discussed: the experiential approach vs. the analytical approach; implicit learning vs. explicit learning; declarative knowledge vs. procedural knowledge; the functional approach vs. the formal approach; the content-driven approach vs. the language driven approach. The review will then take us to the focus of this study--whether immersion instruction has advantages over other types of language programs.

4.2.1. Interaction hypothesis

The interaction hypothesis explains second language acquisition from the cognitivist/development perspective. The interaction hypothesis proposes that learners acquire language through communication. Ellis (1999) defined interaction as "the interpersonal activity that arises during face-to-face communication … it can also refer to the intrapersonal activity involved in mental processing (p. 3)." He suggested that interpersonal and intrapersonal interaction are both related to language acquisition (p. 3). Hatch (1978) argued that interacting is a key point of learning a second language. The interaction hypothesis focused on interaction itself - that is, to understand the meaning through negotiation (as cited in Ellis, 1999, p. 3).

Important components of the interaction hypothesis include (a) comprehensible input and (b) modified interaction, and (c) language acquisition. Comprehensible input refers to the information the listeners can understand. Modified interaction refers to the mechanism that makes the information understandable (Lightbown & Spada, p.43). Krashen (1982) and Long (1983) both considered comprehensible input an essential part in the process of language acquisition. Long (1983) further suggested that modified interaction is the opportunities to interact with other people in order to comprehensively understand each other (as cited in Lightbown & Spada, 2006, p. 43). Long (1980) described interactional modifications as the effort to alter the conversation in a way that enables better understanding and prevents potential miscommunication due to language or other barriers (Ellis, 1999, p. 4). Long (1983) explained the relationship among interactional modification, input and acquisition in the interaction hypothesis: "1. Interactional modification makes input comprehensible. 2. Comprehensible input promotes acquisition. Therefore, 3. Interactional modification promotes acquisition (as cited in

Lightbown & Spada, 2006, p. 43).” Basically, the interaction hypothesis states that a language acquisition process is promoted through comprehensible input that includes appropriate feedback.

The interaction hypothesis has developed over the years (Ellis 1999). Originally, the interaction hypothesis was defined as language acquisition resulting from solving communication problems as they arise within an interpersonal oral interaction (Ellis, p. 4). Over time, Long (1996) updated the interaction hypothesis, and

> “proposed that environmental contributions to acquisition are mediated by selective attention and the learner’s developing L2 processing capacity, and that these resources are brought together more usefully, although not exclusively during ‘negotiation for meaning’(Long, p. 414, as cited in Ellis, 1999, p. 8).”

Ellis (1999) explained the difference between the early and later versions. The early version only explained that learners need comprehensible input through negotiation and this process helps learners to acquire the language. The latter version has more ways to explain the effects of interaction in language acquisition: the listeners’ feedback and modified output are also comprehensible input, which help learners recognize errors, and this process connects the input and the learner’s internal capacities that facilitate the learner’s acquisition (Ellis, p.14). Both the early and latter version of the interaction hypothesis provide an explanation of interaction as a tool in the language learning process.

Ellis (1999) also discussed the information processing model, which is related to the noticing hypothesis and facilitates understanding the effects of interaction by the latter-version of the interaction hypothesis. As Lightbown & Spada (2006) summarized, the noticing hypothesis

was proposed by Schmidt (1990, 2001), who suggested that learners could acquire something when they noticed it, and acquisition could not happen itself (Lightbown & Spada, p. 44). Schmidt & Frota (1986) stated the principle of noticing the gap as:

> "a second language learner will begin to acquire the target like form if and only if it is present in comprehended input and 'noticed' in the normal sense of the word, that is, consciously (Schmidt & Frota, 1986, p. 311, as cited in Kowal & Swain, 1997, p. 293)."

Swain (2000) thought learners might notice the target language at different levels, such as grammar that is used frequently; the different language forms between native language and the target language, which Schmidt & Frota (1986) mentioned; and what learners do not know how to express (p. 100). Processing input includes understanding the message content and noticing the linguistic form. Robinson (1995) reviewed information processing models and stated that learners had the ability to response both new information and language forms (as cited in Ellis, 1999, p. 8). When considering learner's memory size and the capacity of processing language information and form, it is not difficult to understand that with time spent negotiating meaning, learners have the opportunity to follow the process from language form to language meaning (Ellis, 1999, p. 8). On a certain level, the information processing model explains the reasonableness of effects of negotiation in the interaction hypothesis.

The interaction hypothesis explained the effect of negotiation including comprehensible input and the other's feedback in the process of language learning. In immersion language classes, the process of teaching and students' understanding includes: a) the process of negotiating, b) teacher's adjusting input, and c) students' receiving feedback.

4.2.2 Output hypothesis

The output hypothesis nurtures the learner's grammatical competence by providing leaners opportunities to have output. It is proposed by Swain (1985) and influenced by the cognitive theory and sociocultural theory (Lightbown & Spada, 2006, p.48).

Through studying French immersion programs, Swain (1985) proposed the output hypothesis which is developed from Long's interaction hypothesis (Fotos & Ellis, 1999). Swain proposed that producing language in both spoken and written forms may result in language learning (Swain, 1993, p. 159). Swain (1993) pointed out that there are four ways that producing language fosters language learning. First, producing language provides learners opportunities to practice their linguistic knowledge in context so that they can develop their ability to autonomously use the language. Second, producing language can be a process where the learner transfers an idea from semantic meaning to syntactic form (Swain, 1993, p. 159). Through producing language, learners can notice syntactic knowledge while attempting to express proper semantic information after understanding a speaker's message. This is related to Ellis's (1999) view on the connection among the noticing hypothesis, the information processing model, and the interaction hypothesis – during the time of responding, learners acquire the language through noticing the language form. Third, within the opportunities of producing language, learners can see if their expression works through the others' reaction. This can be a test of learners' output. Fourth, after producing language, learners may receive responses from other speakers (Swain, 1993, p. 160). This relates to the later version of the interaction hypothesis – feedback and modified output is also comprehensible input, which causes learners to recognize their errors and acquire the language. Swain (1993) concluded that it is important to provide learners

opportunities to speak and write in class, along with collaborative activities, especially the discussion that focuses on the target language itself (p. 162). Swain also suggested that class activities could represent sociolinguistics in both formal and informal ways (p. 163). According to Swain's argument, the activities that attempt to promote output should be designed to involve oral and written forms, as well as formal and informal contexts.

Swain (2000) elaborated on the Output Hypothesis through discussing collaborative dialogue in language acquisition. She emphasized the following:

> …the importance of output to learning could be that output pushes learners to process language more deeply – with more mental effort – than does input. With output, the learner is in control. In speaking or writing, learners can 'stretch' their interlanguage to meet communicative goals. To produce, learners need to do something. They need to create linguistic form and meaning, and in so doing, discover what they can and cannot do. … One role for output in second language learning is that it may promote 'noticing'. (p. 99)

Swain clearly identified the process of acquiring language through producing output and connected it to the noticing hypothesis. In the process of producing language, learners may notice that they do not know how to express what they want to say, and they focus on the parts they do not know or cannot perfectly express, in which they modify the output that results in their linguistic knowledge learning. In addition, learners may learn language through hypothesis testing and other's feedback.

Swain concluded that collaborative dialogue facilitates language acquisition through practicing linguistic knowledge and language skills (p. 113). In the process, learners may

spontaneously create words to express themselves with integrating both internalization and externalization of the meanings in the context, so they acquire the linguistic knowledge. He thought that the tasks provided learners opportunities to think about the language form and to practice understanding input and making sentences with meaning, which is useful and helpful for learners improving their ability of strategic processes and knowing language grammar (p. 112). This process of verbalization allows learners to focus on what they say and later contemplate what was said, and the results of his study suggested that the efforts that learners made in the process supported their autonomously correcting grammar forms, which is a process of internalization of knowledge (pp. 109-112).

4.2.3 Communicative language teaching

Communicative language teaching emphasizes using language in meaningful and natural contexts in class. Canal & Swain (1980) proposed that communicative competence consisted of grammatical competence, which is "a knowledge of the linguistic system of the target language"; sociolinguistic competence, which is "an understanding of the dynamics of communication in social contexts"; discourse competence, which is "the ability to interpret individual elements of a piece of discourse in terms of their interconnectedness and their relationship to the entire discourse"; strategic competence, which is "the ability to employ various strategies effectively to get communication done" (as cited in Hu, 2002, p. 95). Thus knowing grammar or using grammatical knowledge is only a part of language ability. Teaching language is to provide learners opportunities to improve comprehensive language abilities so that learners can communicate with others. Fotos and Ellis (1999) pointed out that communicative language

teaching is to assist students in exchanging meaning during opportunities of interaction instead of teaching a language directly (p. 193).

The difference between communicative language teaching and traditional approaches is related to the difference between experiential and analytic activities (Allen, Swain, Harley, & Cummins, 1990). Lapkin, Swain, & Shapson (1990) stated the following:

> A typical dichotomy made in second language teaching is that between analytical and experiential teaching. The former implies breaking the language down into its parts and teaching knowledge about those parts. The latter implies a "holistic" approach to language where teaching strategies involve using the language in meaningful, contextualized ways. (p. 653)

The experiential approach is the communicative approach. Richards and Rodgers (1986) summarized three key assumptions of communicative language teaching:

> 1) that activities that involve real communication promote learning; 2) that activities in which language is used for carrying out meaningful tasks promote learning; and 3) that language that is meaningful to the learner supports the learning process. (p. 72, as cited in Hu, 2002, p. 95)

In contrast, the analytical approach focuses on teaching language knowledge itself. If the instructor spends more time on group-work activity, then learners should react to others' message rather than focuses on language code. This kind of class is categorized as an experiential profile. If the instructor spends more time on practicing language form and reacting to language code, this kind of class is categorized as an analytic profile (Allen, Swain, Harley, & Cummins, 1990, p. 58). The difference between these two approaches is that while the analytical

approach focuses on explicit knowledge, the experiential approach focuses on implicit knowledge (Bialystok, 1981, p. 34; as cited in Fotos & Ellis, 1999, p. 190). Explicit knowledge is what learners can consciously know and state about what they know, and it is abstract and is able to be analyzed, but it is not the same as knowledge of grammatical terms. Implicit knowledge is what learners cannot consciously know and state about what they know, and it is intuitive and procedural, for example, without training native speakers cannot clearly state the language rules that they actually use (Fotos & Ellis, p. 190).

Dekeyser (2003) explained that children's acquisition of their native language is inductive and implicit, while language learners' acquisition is inductive and explicit when they have motivation to study and conclude the rules by themselves through examples (p. 314). He discussed another pair of terminologies that corresponded to explicit learning and implicitly learning: declarative knowledge—which students learn from the process of explicit learning(p. 328)—and procedural knowledge—which students access through the same process as implicitly acquired knowledge (p. 328). Dekeyser thought it was possible that language learners can complete automatization of the language rules without awareness after having large amounts of communication, which results in learners acquiring procedural knowledge and implicit knowledge (p. 329). However, he also suggested that it was difficult to find solid evidence to prove a process of learning without awareness (p. 317) and the evidence of the analytical approach with practicing cannot cause students to naturally acquire procedural knowledge (p. 329). In addition, he discussed several laboratory studies and drew the conclusion that all these studies of comparing implicit and explicit approaches show the strength of explicit learning (p. 324). Implicit learning is good for learning concrete and contiguous knowledge (p. 319) while

explicit learning is good for abstract knowledge and the elements that have distance in their relationship (p. 334). Christensen & Warnick (2006) also discussed procedural knowledge and declarative knowledge in proposing an Asian language teaching approach. This will be discussed at the end of this section.

Based on the review above, the analytical approach is more related to explicit knowledge, while the experiential approach is more related to implicit knowledge. Communication language teaching adopts the experiential approach with appropriate portion of explicit knowledge. A balance between the experiential approach and the analytical approach is a key point to help learners receive the most benefits (Lapkin, Swain, & Shapson, 1990). The following studies discuss the balance between the two approaches.

Allen et al. (1990) discussed the variable-focus approach which consists of structural-analytic component, functional-analytic component, and experiential component. The structural-analytic component focuses on "the formal features of language and medium-oriented practice (Allen et al., p. 67)," which is language knowledge itself. The functional-analytic component focuses on discourse and "practice is both medium- and message-oriented (Allen et al., pp.67-68)." The experiential component focuses on "the natural, unanalyzed use of language for personal, social, or academic purpose (Allen 1983; as cited in Allen et al., pp. 67-68)." Allen et al. investigated functional-analytic materials of a French immersion program, which focused on its effect on learners' L2 proficiency and if it increased learners' opportunities to use the target language forms. Through observing the French immersion program, Allen et al. (1990) found that the learners had struggled to express their content-based idea in French, and they needed language-form help. This study suggested a combination of analytic and experiential approaches.

Stern (1981) discussed language approaches that vary among communicative or functional language teaching and formal language teaching within two frames, a linguistic and sociolinguistic frame, and a psycholinguistic and pedagogic frame. In the linguistic and sociolinguistic frame, formal language teaching focuses on grammar; shifting from formal language teaching to functional language teaching is to add explanation of the target language to the process of exchanging meaning in contexts (p. 430). In the psycholinguistic and pedagogic frame, the distinction between communicative functional language teaching and formal language teaching is learning a language through using the language in an environment or learning a language through practicing the language in language study (p. 430). He thought that functional learning is the most important part in the process of children's language learning while formal learning strategies were involved in a process of adult language learning in psycholinguistic and pedagogic frame (pp. 431-433. Immersion program represents a kind of functional teaching. In order to put the functional approach into effect, Stern (1981) gave an example of a successful French immersion program where L2 is used in teaching school subjects or skills as in real communication while L2 is also used in simulated contexts "artificially creating situation (p. 435)" that represents language strategy teaching or formal teaching. Stern (1981) argued that an effective language teaching approach must combine formal and functional teaching in the psycholinguistic and pedagogic frame.

4.2.4 Content-based instruction

Met (1998) defined content-based teaching as follows:

Content-based language teaching is an approach to second language instruction that

> involves the use of a second language to learn or practice content. … many content-based course or programmes use the second language as the medium for learning the content of specific course (such as mathematics, science, art, or social sciences), shifting the focus from language as course content to language as the medium of instruction. (p. 35)

Met (1998) thought that immersion programs displayed the effectiveness of content-based teaching, which provides learners opportunities to acquire a target language through an authentic context (p. 36). She thought authentic tasks or real-life tasks contribute to declarative and procedural knowledge (p. 37). She also proposed that explicit language instruction may be included in the content course and that explicit information may be beneficial to content-based instruction.

Lyster (1998) proposed combining analytic teaching strategies with experiential teaching in immersion programs. Based on class observation, he suggested that teachers incorporate content in language teaching. He also suggested minimizing explicit teaching in order to integrate language skills into content learning process (p. 85). Obviously, this issue is related to the ratio between explicit language instruction in content-based teaching and analytic teaching in experiential teaching, which was discussed in the previous section.

Snow (2005) agreed with Wesche and Skehan (2002) that content-based and task-based instructions are two trends of curricular design based on communicative language teaching principles (p. 693). Snow (2005) cited Wesche's (1993) summary of content-based instruction (CBI) as follows:

- The goal of CBI is to provide a meaningful context for language teaching to occur.
- The organization of a CBI course centers on content.

- Content drives the curriculum, that is, it is the starting point for decisions about what is taught.
- Language and content are taught concurrently.
- Comprehensible input, provided through the content materials leads to language acquisition. (p. 240, as cited in Snow, 2005, p. 693)

More recently, scholars have begun to think of content teaching as a means to facilitate language learning. Wesche and Skehan (2002) noted five features of different forms of CBI:

- The premise that learners in some sense receive 'two for one', that is, content knowledge and increased language proficiency.
- A language curriculum in which expository texts and discourse are central.
- Orientation into a new culture or 'discourse community'.
- Adaptation of language input, interactional moves, and context to accommodate learners' limited language proficiency.
- Focus on academic language proficiency. (p. 221, as cited in Snow, 2005, p. 694)

The difference between the earlier and latter models is small, and it concerns whether or not language is the exclusive subject taught. The early one is closer to the idea that language is also curricular content – to teach academic content, while the later one is closer to the concept that language learning is through academic content learning – the academic content itself. This reflects a continuum from content-driven approaches to language-driven approaches. An extreme content-driven approach is like total immersion. Along the continuum is partial immersion, language classes that focus on language practice through using content, and language class that focus on language itself, which is an extreme language-driven approach (Met, 1998; Snow,

2005). Immersion instruction is a kind of the communicative approach, which use the content-driven approach combined with an appropriate portion of the language driven approach. The following studies discuss the challenges and problems in immersion programs, which are related to the balance between content driven and language driven approaches. Swain (1991) found that immersion students' productive skills often lag behind their comprehension skills, which is native-like, and they could not easily move from the level of understanding each other and the teacher to the level of expressing themselves clearly (as cited in Paige et al., 2003, 188-189). Loughrin-Sacco (1992) found that in a two-week summer session class that was less regular academic content and was less competitive, immersion students had a positive increase in the target language learning (as cited in Paige et al., 2003, 189). Based on an observation of immersion classes, Allen et al. (1990) concluded that the weakness of content-driven teaching is unsystematic feedback to learners' language errors when they focus on expressing meaning (p. 76). Their study suggested that integrating focused input could combine grammar exercises and communicative activities in class and this way could fully represent the advantages of content teaching. However, doing grammar exercises in content teaching raises the question whether we should focus on students' target language output or target language proficiency. In addition, how does an educator combine the language-driven approach or the analytic approach with the functional approach, especially in Chinese language teaching? In the next section I will discuss one combined approach to teaching of East Asian languages.

4.2.5 Performed culture approach

Christensen & Warnick (2006) proposed the performed culture approach for teaching East Asian languages including Chinese, Japanese, and Korean. It attempts to balance the formal approach and the functional approach in language teaching. Christensen & Warnick suggested that culturally understanding communicative situations and reacting to the situations is the essential element of a performance. Learners need to learn these skills in language classes by imitating meaningful and authentic cultural contexts, because "when language is used for communication, it is inextricably connected to a specified cultural context that provides the meaning and enables understanding of the situation (p. 9-10)." Cultural behavior is the ability that language learners should have beyond knowledge of linguistics code. As East Asian culture is significantly different from Western culture, it is important for American students to learn cultural performing as part of their communicative competence in East Asian languages. Being able to culturally perform needs to be understood and practiced in class. How to balance class time for understanding and practicing is the biggest issue concerning the balance of formal and functional approaches in language teaching.

Christensen & Warnick (2006) introduced two types of classes, FACT and ACT[3], which are concerned with declarative and procedural knowledge respectively. The former is what one knows consciously about the language, and the latter is what one does with the language. They summarized FACT and ACT classes as followings:

[3] These are not abbreviations. FACT represents the lecture class that explains the language's fact, and ACT represents the class that students need to act (Christensen & Warnick, 2006, pp. 58-66).

> In summary, the FACT classes include discussion about the language and the culture, such as explanations about how to produce the sounds of the target language, grammar patterns and how they are used, when and how certain vocabulary items are used, … The ACT classes provide opportunities for learners to perform in the culture, … (p. 59)

The FACT class is a formal approach and the ACT class is a functional approach. Christensen & Warnick suggested that for each FACT class, there should be at least four ACT classes, although the actual ratio may vary. According to them, the ratio between the two types of classes is an important factor in achieving a balance between procedural and declarative knowledge.

4.2.6 Summary

In the above I have reviewed five approaches on language teaching. The interaction hypothesis developed from focusing on language learning in communication to focusing on negotiation for meaning and comprehensible input in language acquisition. The output hypothesis proposes that having opportunities to produce output benefits the process of improving learners' grammatical ability. The communicative approach advocates learning language through meaningful and natural context. Content-based instruction is to teach academic content in target language. The performed culture approach focuses on culturally communicating with balancing the formal approach and the functional approach in language teaching. The interaction hypothesis and the output hypothesis are foundation of the communicative approach and content-based instruction. The performed culture approach is an applied communicative approach with a balance between the analytical approach and the experiential approach in

teaching East Asian languages. The observation check list that I used for this study was designed on the basis of the five approaches.

4.3 The Present Study

In this study I evaluate the teaching methods adopted in Chinese immersion programs following guidelines of the approaches reviewed above.

The research questions are as follows:

1) How do the four types of classes, the immersion Chinese class, the immersion Chinese-math class, the non-immersion Chinese language class, and Chinese weekend classes, differ with respect to teaching methods?
2) Do the differences between Chinese immersion program and other Chinese language programs indicate that the approach of practicing and using language in authentic contexts is better?

Each type of class will be evaluated according to a list of criteria, which will be introduced in the following section.

4.3.1 Observation checklist

This observation checklist was designed based on the approaches discussed above. To date, two observation checklists have been proposed in the literature: Fortune's (2000) immersion teaching strategies observation checklist, and the communicative orientation of language teaching (COLT) observation scheme that Allen et al. (1990) introduced, which is

based on the study of appropriate ratio of the analytic and experiential approaches in immersion program.

A communicative approach should consider the following aspects: comprehensible input, which includes negotiation, adjusting input, and feedback; output, which includes the opportunities of producing output, noticing the gap between what learners said and what they expected to say, whether it is intact output, the reaction to others' feedback, and whether there are oral output and written output; the ratio of the analytical approach to the experiential approach; and authentic materials or context.

The COLT observation scheme divided aspects of communicative language teaching in two parts. The first part includes the design of class activity, class content, and materials. This concerns the ratio of the analytical approach to the experiential approach, negotiation, and authentic materials and context. The second part includes the ratio of L1 to L2; information exchange; learner's utterance, including the length of learners' speech and the abilities of learners' self-correction, adjusting input and initiated talk; reaction to the correction of linguistic knowledge and other language knowledge; reaction to peers; and whether there is any restriction of linguistic form in class. This concerns negotiation, adjusting input, the effect of feedback, and the effect of output (Allen et al., p. 59, & pp. 78-81). Fortune's (2000) immersion teaching strategies observation checklist has similar structures for each item.

For this study, I combined the two observation checklists above. The list that I made contains 8 parts: teaching approach, ratio of explicating, authentic context, comprehensible input, output, language, students' speech, and restriction of linguistic form. In each part several possibilities are given. The complete list is give in Appendix G.

For each observation time, detailed notes were written down, which include the teachers and the students' utterances. Each observation was analyzed according to the observation checklist. All observation checklist information was collected for each language class in order to summarize its characteristics. The frequency each option was selected for each language class was tallied. The observation results of each language class are presented in Table 6 to 9. At the end, each of the four language classes' information was presented in one table (Table 10) for ease of comparison.

4.3.2 The immersion Chinese language class at Central Hill

There were a total of 28 instances of observation. Except for one observation event, which was less than one hour, the other 27 events were approximately two hours. I observed the class at least twice weekly except holidays. Not all classes were observed in their entirety. The classes on different weekdays were not the same, the entire 3 hour duration of the class on Tuesday and 2 hours the other days. The observation was rotated throughout the semester, and all weekdays were observed rotationally. Table 6 gives the findings of the immersion Chinese language class at the Central Hill school. The second column in the table shows how many classes that were observed displayed the feature listed.

Table 6
The observation results of 28 immersion Chinese language classes

Categories	# of events
1 Teaching approach	
A. Mainly analytical approach	0
B. Analytical approach with practicing in context	0
C. Functional approach with explicating	28
D. Mainly functional approach	28
2. Ratio of explicating	

A. Less than 25%	28
B. Around 50%	0
C. Around or above 75%	0
3. Context	
A. Authentic context	28
B. Practice materials	28
4. Comprehensible input	
A. Adjusting input with learners' negotiation	28
B. Adjusting input with learners' non-language reaction	28
C. Giving learners contextual feedback	27
D. Giving learners grammatical feedback	26
E. No feedback	0
5. Output	
A. Learners have opportunities to produce output	28
B. Learners have opportunities to produce contextual output	28
C. Learners have less opportunities to produce output	0
D. Have peers' contextual feedback	28
E. Have peers' grammatical feedback	16
F. No peers' feedback	0
G. Have reaction to grammatical feedback	12
H. Have reaction to contextual feedback	23
I. Learners don't have opportunities to react to feedback	0
J. Learners have opportunities to produce oral output	28
K. Learners have opportunities to produce written output	26
L. Learners have self-correction	2
6. Language	
A. Mostly use Chinese to teach content	28
B. Training learners to use Chinese in appropriate context	28
C. Use Chinese to teach Chinese grammar	28
D. Use English to teach Chinese grammar	0
7. Students' speech	
A. Incomplete utterance (one word or one clause)	28
B. Sustained speech (at least two main clauses or longer than one sentence)	28
C. Spontaneously initiated talk	28
8. Restriction of linguistic form	
A. Restricted: expect a particular linguistic form	28
B. Unrestricted: no expectation of any particular linguistic form	28

Class activities of the immersion Chinese language class at Central Hill school included a large variety of events: covering the content of the Chinese textbook; introducing Chinese culture; teaching the *"Three-Character Classic"* (a part of the traditional Chinese canon); singing Chinese songs; rehearsal; organizing subject matter; drawing; making cards; watching video; using an electronic book; watching a hamster; the instructor reading a story book in Chinese; daily questions; vocabulary test; and handwriting exercises.

This teaching style primarily involved the functional approach (Table 6 SEC 1). The instructor organized class activities around performance in Chinese, and the students used and learned Chinese by performing various activities. But the immersion class also uses a textbook. Therefore the class combined the functional approach and deductive instruction.

Less than 25 percent of class time was devoted to explication (Table 6 SEC 2). When explicating grammar points or new vocabulary, the instructor focused on how to use them by providing examples and context rather than explaining linguistic codes.

With respect to context (Table 6 SEC 3), class activities included both authentic contexts and practicing material. As mentioned above, the instructor taught, demanded, and managed the students in Chinese, and she also used Chinese to provide feedback. These are all authentic contexts. The instructor also gave the students classroom exercises to reinforce vocabulary and specific grammar points. These concern practicing materials.

When categorizing comprehensible input (Table 6 SEC 4), adjusting input because of learners' negotiation and non-language reaction were observed in each event. Students' questions about the instructor's input were observed. Also, the instructor rephrased students'

explanations or statements, which means the teacher noticed the students' confusion. Contextual feedback includes complimenting students, making corrections, addressing discipline issues, and so on. Grammatical feedback includes providing students with Chinese words when students spoke English, correcting them, and reminding them of grammar points that students could not readily recall. There was only one day when I did not record contextual feedback by the instructor, and there were two days where the instructor did not offer any grammatical feedback.

Concerning output (Table 6 SEC 5), the students had opportunities to produce Chinese including contextual output in each observation class. The students' contextual feedback, such as telling the instructor their classmates were talking and expressing disagreement with the instructor or their classmates, was apparent in all 28 observation instances. The students' grammatical feedback, which includes correcting their peers and the instructors, as well as explaining details of the errors, was observed in 16 observation classes. The students' reaction to grammatical feedback from the instructor or their peers was observed in 12 classes. The students' reaction to contextual feedback, such as disagreeing or refuting the teacher or the peers, was noted in 23 classes. Only verbal reaction was noted while body language was ignored. Opportunities to produce Chinese were observed in each class. In all but two classes the students produced written output as well. In two observation classes the learners' made self-corrections.

Approaching language of instruction in class (Table 6 SEC 6), in each observation class the instructor mostly (75% or more) used Chinese to teach class content including Chinese grammar and appropriate contextual usage. But in almost every observation class the instructor also used a little English, which was limited to one word expressions or short sentence explanations.

When dealing with the actual language use in class by the students (Table 6 SEC 7), students produced a wide range of utterances from single word through complete sentences reflecting attempts at complex communication. In multiple instances, incomplete sentences were supplemented by inclusion of English vocabulary.

The observations regarding the learner's language structure showed both restricted and unrestricted linguistic forms (Table 6 SEC 8). When the teacher taught specific grammar and/or vocabulary, the students readily adopted the proper from following initial practice. When the students communicated spontaneously, the linguistic form used was often outside of the structure of the current lesson, suggesting that the students have internalized forms that they were exposed to before.

4.3.3 The immersion Chinese-math class at South Mountain

Table 7 shows the observation results of the immersion Chinese-math class at the South Mountain school. There were a total of 19 instances of observation lasting two hours each on average. Each instance of observation included math, as well as either language and/or science portions, all taught in Chinese. Math was taught in Chinese every day. All three class portions were observed. The second column displays the corresponding category item for the observed classes.

Table 7
The observation results of immersion Chinese-math class

Categories	# of events
1 Teaching approach	
A. Mainly analytical approach	0
B. Analytical approach with practicing in context	0
C. Functional approach with explicating	19

D. Mainly functional approach	19
2. Ratio of explicating	
A. Less than 25%	19
B. Around 50%	0
C. Around or above 75%	0
3. Context	
A. Authentic contexts	19
B. Practice materials	19
4. Comprehensible input	
A. Adjusting input with learners' negotiation	0
B. Adjusting input with learners' non-language reaction	19
C. Giving learners contextual feedback	19
D. Giving learners grammatical feedback	17
E. No feedback	0
5. Output	
A. Learners have opportunities to produce output	19
B. Learners have opportunities to produce contextual output	19
C. Learners have less opportunities to produce output	
D. Have peers' contextual feedback	17
E. Have peers' grammatical feedback	6
F. No peers' feedback	0
G. Have reaction to grammatical feedback	2
H. Have reaction to contextual feedback	5
I. Learners don't have opportunities to react to feedback	0
J. Learners have opportunities to produce oral output	19
K. Learners have opportunities to produce written output	5
L. Learners have self-correction	
6. Language	
A. Mostly use Chinese to teach content	19
B. Training learners to use Chinese in appropriate context	19
C. Use Chinese to teach Chinese grammar	17
D. Use English to teach Chinese grammar	0
7. Students' speech	
A. Incomplete utterance (one word or one clause)	19
B. Sustained speech (at least two main clauses or longer than one sentence)	0
C. Spontaneously initiated talk	19
8. Restriction of linguistic form	

A. Restricted: expect a particular linguistic form	19
B. Unrestricted: no expectation of any particular linguistic form	19

Class activities of the immersion Chinese-math class at the South Mountain school include reviewing math questions, teaching math, math practice, math tests, teaching science, and teaching Chinese language. Like the immersion Chinese language class, these classes were mainly conducted using a functional approach (Table 7 SEC 1). The instructor organized student class activities in Chinese, and the students used and practiced Chinese language during class. Chinese was the primary means of language for learning. The immersion class includes teaching math and science along with Chinese language teaching. Therefore the class displayed a functional approach coupled with explicating. There is a Chinese language teaching class portion, which is to teach Chinese vocabulary and writing, and the instructor used pictures and body language without any explanation of linguistic code, showing that less than 25% of classroom teaching is explicating (Table 7 SEC 2).

With respect to authentic context and practice materials (Table 7 SEC 3), the instructor taught, corrected, and managed the students in Chinese. She also provided feedback with authentic contexts. The instructor further designed class activities to practice new vocabulary in the Chinese language class portion.

In each observation class the instructor adjusted his language based on students' reaction (Table 7 SEC 4), such as confused expressions or wrong answers. The students did not have the ability to negotiate. When they did not understand, they gave wrong answers to the instructor's questions, produced simple words, such as yes or no, right or wrong, or showed confusion. In each class, the instructor gave students contextual feedback, such as complimenting students,

discussing their answers, and telling them their manners were not good, etc. With the exception of two instances of observation, in all other classes the instructor gave the students' grammatical feedback, or else corrected their pronunciation or writing in math and Chinese language class portions.

In terms of contextual output, in each class multiple opportunities were provided for students to produce Chinese (Table 7 SEC 5). Students made statements as "xièxie (thank you)," "bú kèqi (you are welcome)," "língshí (snack)," "zhǔnbèi hǎole (we are ready)," "zuò wánle (we are done)," "wǒ xiǎng hē shuǐ (I want to drink water)," "jì kuàisù yòu zhǔnquè (be quick and accurate)," "mǎmǎhūhu (just so-so)," and so on. Although the expressions are simple, the students produced them freely and spontaneously. Students' contextual feedback was observed in 17 classes, which included asking other students to be quiet or not to speak English, group discussion, and reminding the instructor of something, etc. Students continued to use simple words, but the expressions were appropriate in the context. Students' grammatical feedback to their peers was observed in 6 classes. Such feedback was used to remind their peers how to say something in Chinese. Students' reaction to grammatical feedback from the instructor was observed in 2 classes, and their reaction to contextual feedback from the instructor and their peers was observed in 5 classes. Besides spoken Chinese, which was produced in each class, students also did written exercises in Chinese in 5 classes, including four occasions of writing practices and one time of character writing on science materials. This was observed in the second half of the semester, as the first half of the class was devoted to practicing spoken language only in the Chinese language portion.

In each class, the instructor primarily used Chinese to teach class content (Table 7 SEC 6) and trained learners to use Chinese in appropriate contexts. For example, even though some of the materials were in English, the instructor did not speak about the material in English.

As to students' speech (Table 7 SEC 7), in each class session, students had multiple opportunities of spontaneous talk. The talk included incomplete utterances, such as one word, one phrase, or a simple sentence. Even though what the students could spontaneously say was limited, they repeated these routine phrases every day.

With regards to restriction of linguistic form (Table 7 SEC 8), in each observation event there was both restricted and unrestricted linguistic forms. When the instructor introduced new vocabulary, the students practiced the new words, which is the expected linguistic form. When students communicated spontaneously, the linguistic form was often beyond the structure covered in the current lesson.

4.3.4 The Chinese weekend class at Lincoln

The weekend class at the Lincoln school was observed once a week on the weekends. There were a total of 11 ninety minute classes. Table 8 shows the observation results of Chinese weekend class. The second column shows the number of classes displaying the features under each category.

Table 8
The observation results of Chinese weekend class

Categories	# of events
1 Teaching approach	
A. Mainly analytical approach	0
B. Analytical approach with practicing in context	9
C. Functional approach with explicating	0

D. Mainly functional approach	2
2. Ratio of explicating	
A. Less than 25%	2
B. Around 50%	9
C. Around or above 75%	0
3. Context	
A. Authentic contexts	11
B. Practice materials	11
4. Comprehensible input	
A. Adjusting input with learners' negotiation	11
B. Adjusting input with learners' non-language reaction	0
C. Giving learners contextual feedback	9
D. Giving learners grammatical feedback	10
E. No feedback	0
5. Output	
A. Learners have opportunities to produce output	11
B. Learners have opportunities to produce contextual output	11
C. Learners have less opportunities to produce output	0
D. Have peers' contextual feedback	3
E. Have peers' grammatical feedback	9
F. No peers' feedback	0
G. Have reaction to grammatical feedback	3
H. Have reaction to contextual feedback	5
I. Learners don't have opportunities to react to feedback	0
J. Learners have opportunities to produce oral output	11
K. Learners have opportunities to produce written output	3
L. Learners have self-correction	2
6. Language	
A. Mostly use Chinese to teach content	11
B. Training learners to use Chinese in appropriate context	10
C. Use Chinese to teach Chinese grammar	8+Eng/3
D. Use English to teach Chinese grammar	0
7. Students' speech	
A. Incomplete utterance (one word or one clause)	0
B. Sustained speech (at least two main clauses or longer than one sentence)	11
C. Spontaneously initiated talk	11
8. Restriction of linguistic form	

A. Restricted: expect a particular linguistic form	11
B. Unrestricted: no expectation of any particular linguistic form	11

The class primarily adopted the analytical approach. Class activities focused on a Chinese textbook (Table 8 SEC 1), including reading texts, dictation, explaining vocabulary, and practicing in context. However, two classes were devoted to discussions or explaining the format of the midterm and the final exam. In these classes a functional approach was adopted. Correspondingly, in only two observed classes did explanation consume less than 25% of class time (Table 8 SEC 2), while in the remaining classes explicit occupied about half of class time.

As shown in the table (Table 8 SEC 3), class activities were conducted in authentic contexts; there was also practice material. The instructor used Chinese to organize class activities, which included collecting homework, praising the students, correcting them, and general discipline. These were activities used in authentic contexts. The class also focused on a Chinese textbook for learning materials.

In each class the instructor adjusted her language based on the students' negotiation, indicating comprehensible input (Table 8 SEC 4). There was no notation made for adjusting input with non-language reaction. The reasons may be that: 1) students' language ability was high, and they could fully express themselves; 2) the instructor adjusted the input based on the students' non-verbal reaction, but it was not written down. In 9 classes there was contextual feedback provided to the students. As the instructor used Chinese to organize the class, it is possible that the instructor gave contextual feedback to the students every session. In 10 classes there was grammatical feedback, which included correcting pronunciation.

In the area of output (Table 8 SEC 5), the students had multiple opportunities to use Chinese for contextual communication in each class. The students' contextual feedback to their peers, instructor, and the class were observed in 3 classes. The students' grammatical feedback to their peers was observed in 9 classes. This primarily consisted of correcting someone's pronunciation. Students' reaction to grammatical feedback was notated in 3 classes and their reaction to contextual feedback was noted in 5 classes, which included attempts to find excuses for themselves. In each class, the students had opportunities to use spoken Chinese. However, in only three classes they did write Chinese. In two classes the students made self-corrections. While it is possible that the students had more feedback, reaction or self-correction, it was not recorded.

As for the language of instruction in class (Table 8 SEC 6), in each class the instructor mostly (75% or more) used Chinese to teach the content, including Chinese grammar and vocabulary with appropriate contextual usage. In eight classes the instructor did use English but this was limited to one word or short sentence explanations.

When it comes to the target language use in class, in general, students were able to express themselves with complete sentences (Table 8 SEC 7).

In each class both restricted and unrestricted linguistic forms were observed. (Table 8 SEC 8). The former was used when the instructor taught certain grammar or vocabulary. Students employed restricted form to practice relevant words and patterns. When students communicated spontaneously, the linguistic form used was often beyond the structure of the current lesson.

4.3.5 The non-immersion Chinese class at West Desert

The non-immersion Chinese class at the West Desert school was observed twice weekly, each time approximately 30 minutes. Altogether 19 observations were made. Table 9 gives the observation results of the Chinese language class. The second column shows how many classes that were observed displayed the features under each category.

Table 9
The observation results of non-immersion Chinese language class

Categories	# of events
1 Teaching approach	
A. Mainly analytical approach	0
B. Analytical approach with practicing in context	19
C. Functional approach with explicating	2
D. Mainly functional approach	0
2. Ratio of explicating	
A. Less than 25%	2
B. Around 50%	17
C. Around or above 75%	0
3. Context	
A. Authentic contexts	2
B. Practice materials	19
4. Comprehensible input	
A. Adjusting input with learners' negotiation	0
B. Adjusting input with learners' non-language reaction	0
C. Giving learners contextual feedback	6
D. Giving learners grammatical feedback	17
E. No feedback	0
5. Output	
A. Learners have opportunities to produce output	19
B. Learners have opportunities to produce contextual output	0
C. Learners have less opportunities to produce output	0
D. Have peers' contextual feedback	3
E. Have peers' grammatical feedback	2
F. No peers' feedback	15
G. Have reaction to grammatical feedback	0

H. Have reaction to contextual feedback	0
I. Learners don't have opportunities to react to feedback	0
J. Learners have opportunities to produce oral output	19
K. Learners have opportunities to produce written output	7
L. Learners have self-correction	0
6. Language	
A. Mostly use Chinese to teach content	0
B. Training learners to use Chinese in appropriate context	0
C. Use Chinese to teach Chinese grammar	2
D. Use English to teach Chinese grammar	19
7. Students' speech	
A. Incomplete utterance (one word or one clause)	19
B. Sustained speech (at least two main clauses or longer than one sentence)	0
C. Spontaneously initiated talk	12
8. Restriction of linguistic form	
A. Restricted: expect a particular linguistic form	19
B. Unrestricted: no expectation of any particular linguistic form	0

In this class the focus was on teaching vocabulary and simple sentence structures. In each of the 19 classes the analytical approach with contextual practice was employed (Table 9 SEC 1). However, in the last two classes the instructor also used the functional approach when she taught the four physical directions (in front of, behind, left, and right). Correspondingly, in these two classes the time of explicating grammar or vocabulary was less than 25%. The ratio of explicating was around 50% in other classes (Table 9 SEC 2).

In all 19 classes the instructor used prepared practice materials, while in the last two classes the she also used authentic contexts as part of ‘real life’ situations (Table 9 SEC 3).

There was no sign of adjusting comprehensible input with respect to learners’ negotiation or non-language reaction (Table 9 SEC 4). The reasons may be that first, the students’ language ability was low, and they could not express what they wanted to say; secondly, the instructor

used English to explain things, and she did not need to modify the Chinese input; thirdly, the students used English when asking questions and received an English explanation. In 6 classes the instructor's contextual feedback was observed and the instructor's grammatical feedback was observed in 17 classes.

The students had multiple opportunities to speak Chinese in each class, but it followed a strict structure, which cannot be considered contextual output (Table 9 SEC 5). The students' contextual feedback to their peers was observed in three classes and their grammatical feedback was observed in two classes. It includes helping classmates during grammar pattern practice. In all 19 classes, the students had opportunities to speak Chinese, and in 7 classes, they also had opportunities to write Chinese.

With the exception of the last two classes which contained some Chinese, the instructor used English throughout the course with Chinese examples (Table 9 SEC 6).

In each class students produced simple sentences or incomplete sentences, which followed grammar practice, (Table 9 SEC 7). In 12 classes the students also produced spontaneous speech in Chinese, which included "qǐng ānjìng (be quiet)", "féng lǎoshī (teacher Feng)," "xièxiè (thank you)," and "nǐ hǎo (hello)."

The linguistic form in each class was restricted to the content of the lesson (Table 9 SEC 8). Although the students spontaneously produced a few expressions as mentioned above, they cannot be counted as unrestricted linguistic forms because they were too simple. While students could communicate and respond to the teacher's simple commands such as "zhǔnbèi hǎole ma? (ready?)"; "qǐlì (stand up!)"; "xiàkè, tóngxuémen zàijiàn (class is over, see you)" etc… these expressions are simply rote communication.

4.4 Discussion

The purpose of the this chapter was to examine immersion programs and find out if these programs used more effective teaching methods compared with non-immersion programs. To achieve this goal, I compared immersion Chinese language, immersion Chinese-math, non-immersion Chinese language, and Chinese weekend classes. We can now answer the research questions, repeated below:

1) How do the four types of classes, the immersion Chinese class, the immersion Chinese-math class, the non-immersion Chinese language class, and Chinese weekend classes, differ with respect to teaching methods?
2) Do the differences between Chinese immersion program and other Chinese language programs indicate that the approach of practicing and using language in authentic contexts is better?

Table 8 combines the information obtained from all four tables (Table 6, 7, 8, 9), and shows the differences among the four classes. The first category in the table is teaching approach. The immersion Chinese language class and the immersion Chinese-math class mainly adopted the functional approach supported by explicating, while the weekend class and the regular Chinese language class mainly used the analytical approach together with practicing in context. No language class used the analytical approach as the only teaching method. Correspondingly, no language class devoted more than 75% of a class to explicating in teaching. The immersion Chinese language and the immersion Chinese-math class used less than 25% class time explicating vocabulary and grammar, while most sessions of the weekend class and the Chinese language class used around 50% class time explaining grammar.

Three of the classes, the immersion Chinese language, the immersion Chinese-math, and the weekend class, used both authentic contexts and practice materials, while the Chinese language class mainly used practice materials, which were designed to help students to use the target grammar structures with limited contextual information.

In the first three classes, the instructors adjusted their language use based on student reactions, including negotiation or/and non-language reaction, while providing both contextual and grammatical feedback. However, in the Chinese language class the instructor did not obviously adjust her Chinese input based on learners' reaction, and instead focused mainly on giving grammatical feedback with some contextual feedback in Chinese.

Students in the immersion Chinese language class and the weekend class both produced comprehensive output, including contextual and grammatical feedback to their peers and instructors, refuting others' feedback, and self-correction. In addition, they produced both oral and written Chinese. Although the students in the immersion Chinese-math did not make obvious self-corrections, what they produced can also be considered as comprehensive. Students in the regular Chinese language class produced less Chinese than students in the other three classes although they had opportunities to produce oral and written Chinese. Additionally, they had less contextual and grammatical feedback with their peers; neither did they have obvious reaction to others' feedback and self-correction.

In the immersion Chinese language, the immersion Chinese-math, and the weekend classes, the instructor mostly used Chinese as the language for content teaching, while in the Chinese language class the instructor used English for instruction.

Students in all the four types of classes had spontaneously initiated talk, but the students in the immersion Chinese language and weekend classes produced more complete sentences, and students in the immersion Chinese-math and regular Chinese language classes mainly produced incomplete sentences.

In the immersion Chinese language class, the immersion Chinese-math class, and the weekend class there were both restricted and unrestricted linguistic forms, while in the regular Chinese language class there was mainly restricted linguistic form.

Table 10
Comparison of four classes

Class Type	Immersion Chinese	Immersion math	Weekend	Language
Class Sessions	28	19	11	19
1 Teaching approach				
A. Mainly analytical approach	0	0	0	0
B. Analytical approach with practicing in context	0	0	9	19
C. Functional approach with explicating	28	19	0	2
D. Mainly functional approach	28	19	2	0
2. Ratio of explicating				
A. Less than 25%	28	19	2	2
B. Around 50%	0	0	9	17
C. Around or above 75%	0	0	0	0
3. Context				
A. Authentic contexts	28	19	11	2
B. Practice materials	28	19	11	19
4. Comprehensible input				
A. Adjusting input with learners' negotiation	28	0	11	0
B. Adjusting input with learners' non-language reaction	28	19		
C. Giving learners contextual feedback	27	19	9	6
D. Giving learners grammatical feedback	26	17	10	17
E. No feedback	0	0	0	0
5. Output				
A. opportunities to produce output	28	19	11	19
B. opportunities to produce contextual output	28	19	11	0
C. less opportunities to produce output	0	0	0	0

D. Have peers' contextual feedback	28	17	3	3
E. Have peers' grammatical feedback	16	6	9	2
F. No peers' feedback	0	0	0	15
G. Have reaction to grammatical feedback	12	2	3	0
H. Have reaction to contextual feedback	23	5	5	0
I. Have no opportunities to react to feedback	0	0	0	0
J. Opportunities to produce oral output	28	19	11	19
K. Opportunities to produce written output	26	5	3	7
L. Self-correction	2	0	2	0
6. Language				
A. Mostly use Chinese to teach content	28	19	11	0
B. Training learners to use Chinese in appropriate context	28	19	10	0
C. Use Chinese to teach Chinese grammar	28	17	8+Eng /3	2
D. Use English to teach Chinese grammar	0	0	0	19
7. Students' speech				
A. Incomplete utterance (one word or one clause)	28	19	0	19
B. Sustained speech (at least two main clauses or longer than one sentence)	28	0	11	
C. Spontaneously initiated talk	28	19	11	12
8. Restriction of linguistic form				
A. Restricted: expect a particular linguistic form	28	19	11	19
B. Unrestricted: no expectation of any particular linguistic form	28	19	11	0

The above comparison of the four different types of Chinese classes shows clearly that the Chinese immersion program is different from other Chinese programs in teaching methods and student output. Immersion Chinese language and immersion Chinese-math class share the most similarities, and they contrast sharply with the Chinese language class in the following areas:

1) The immersion programs adopted the functional approach and did not focus on explicating, while the Chinese language class employed the analytical approach and taught grammar through explicating;

2) The immersion programs used authentic contexts combined with practice materials, while the Chinese language class focused on practice materials;

3) The immersion programs had comprehensible input and comprehensive output, while the Chinese language class had limited Chinese input and the students had limited output;

4) The immersion programs mainly used Chinese to teach content, including training students to use Chinese in appropriate contexts, while the instructor in the Chinese language class used English to explain vocabulary and grammar;

5) In the immersion programs the students' speech included both restricted and unrestricted linguistic form, while students in the Chinese language class mainly used restricted linguistic form.

My findings show that immersion programs employ the communicative approach; it attempts to provide contextual input and encourages spontaneous output. According to the output hypothesis, this is necessary for successful language learning. The immersion programs also combine analytical and experiential teaching. Based on previous studies (Allen et al., 1990; Stern, 1981; Christensen & Warnick, 2006), effective language teaching must combine explicating grammar with the communicative approach; the goal is to find an optimal means of instruction that is geared towards benefiting language learners. The observation results show that immersion programs give learners the greatest possible opportunities to be naturally

involved in the target language by teaching academic content in the language. This is content-based instruction that uses the target language in an authentic context.

A number of implications follow from our findings. First, in terms of immersion in the target language, the weekend class was similar to the immersion class. In both classes students were immersed in the target language and taught in the target language. The weekend class also involved comprehensible input and the students also had multiple ways of producing Chinese. However, the weekend class mainly used the analytical approach when it comes to practicing in contexts. This shows that immersing students in a target language by itself does not necessarily mean implementing the functional approach. It is understandable that when Chinese native speakers learn Chinese, they are immersed in Chinese, but they do not practice Chinese grammar. Although the weekend class also displayed comprehensible input and students' comprehensive output, it does not imply that the analytical approach itself is sufficient; authentic practice is also necessary. Students of the weekend class received help from their parents on their assignments, while regular language students did not. In the interviews and questionnaires, all parents of the weekend school mentioned that they attempted to speak Chinese to their children, and some parents said that they explained word meanings to their children. It means weekend classes had both FACT and ACT, (Christensen & Warnick, 2006), and the ACT part was accomplished at home by the parents. This also shows that the ACT part, which relies on the communicative approach, is important. Without interaction between the instructor and students, it is difficult to know if students have acquired the language knowledge. We may understand it through an example that many Chinese people living in the U.S. do not naturally improve their English. This supports the competition model that the second language has to be learned

(Lightbown & Spada, 2006, p.42; MacWhinney, 1997, p.113) and that the communicative function determines language development (MacWhinney, 1997, pp.114-115). Therefore, how to implement a communicative approach is an important issue in language teaching,

Second, the findings show that both the immersion Chinese language and the immersion Chinese-math language classes had a small class portion of Chinese instruction which focused on vocabulary and grammar learning. This suggests that educators have noticed the importance of finding a balance between an experiential approach and an analytical approach. This supports studies of Allen et al. (1990) and Stern (1981). They found that learners needed explanations of the target language and it is necessary to combine the analytic approach into the communicative approach. This also supports Christensen & Warnick's (2006) proposal on the ratio of FACT and ACT. Without teaching vocabulary and grammar, the vocabulary and linguistic form that can be naturally involved in a students' learning are limited, although immersion programs attempt to reach more vocabulary through teaching academic content in the target language. Without any explanation of vocabulary and grammar, students would spend more time guessing the meaning instead of using the language, which would reduce the effect of the communicative approach. Thus although a language class should not focus on explanation, it is beneficial for learners to receive some explanation in class, especially when new vocabulary and grammar patterns are introduced.

Third, my findings show that the four types of classes did not fully break away from English. The instructor in the Chinese language class taught vocabulary and grammar by relying on English translation; the instructors in the immersion Chinese language class and the weekend class occasionally explained difficult points in English; the instructor in the immersion Chinese-

math class spoke very little English, but he used English language materials. This implies that a certain amount of English explanation is necessary, and this supports Christensen & Warnick's (2006) approach, where FACT is in English within an appropriate portion. How much English should be used in class has to do with the ratio of FACT and ACT. This is addressed in my next point.

Fourth, the findings also show that the regular Chinese language class spent more time on teaching in English, while the other three types of classes had less English speaking by the instructors. However, it is worth noticing that the regular Chinese language class only has 30 minutes of instruction per day, and the students' proficiency was very low. Thus using more English in class might be a strategy the instructor used to communicate with students. It could be argued that the students in immersion programs were also at a low level but they continually improved through being immersed in Chinese. But one cannot deny that immersion programs provide more time for students to learn and practice the target language. In the immersion Chinese-math class, students could spontaneously produce expressions like "wǒ xiǎng hē shuǐ (I want to drink)," "bùxǔ shuō yīngyǔ (don't speak English)," "jì kuàisù yòu zhǔnquè (be quick and accurate)," "wǒ zuò wánle (I am done)," "língshí shíjiān (snack time)," "bú kèqi (you are welcome)," "ānjìng (be quiet)," and so on. Notice that these are their routine phrases from the first day, which means they have practiced it every day for at least one year. The findings also show that students in the Chinese language class could also naturally say "ānjìng (be quiet)" in an appropriate context although they could not produce the target answer during practice, and "ānjìng (be quiet)" was a high frequency phrase. This is partially because the instructor needed to discipline the class every day. This is evidence that learning language takes time and needs

sufficient input and practice. Immersion programs have advantages because they have been designed to allow plenty of time implementing a communicative approach through teaching academic content in the target language. However, different programs may have their own requirements, and it may not be possible to adopt the communicative approach for all types of language programs. Finding an appropriate ratio of FACT and ACT is important for all kinds of language programs, and the appropriate ratio of FACT and ACT can vary based on the needs and goals of language programs.

In sum, although finding a balance point of explicating in the communicative approach may not change the reality that learning language takes time, it can make the learning process easier. When compared with other approaches the approach can produce learners with the same or higher level of proficiency in the same amount of time. This study is based on the observation notes that were taken by hand, and thus it is not possible to write down every single detail. However the results do show a pattern of the four classes. In future research, if recording data can be obtained, a statistical analysis of the data may provide stronger evidence for the efficiency of the communicative approach in immersion programs and the importance of finding the appropriate ratios of FACT and ACT for language programs.

CHAPTER 5: THE *BA* CONSTRUCTION AND TIME PHRASE

This chapter is devoted to the second study, an examination of how learners in immersion programs acquire grammatical structures. I focus on two structures--learners' development of the *ba* construction and the placement of time phrases. The two structures present different challenges to L2 learners. The *ba* construction is a unique structure in Chinese with a non-canonical word order that does not exist in English. On the other hand, all languages have time phrases, but how they are placed in a sentence may vary. In Chinese time phrases are placed preverbally, either at the sentence-initial position or after the subject, while in English they can be placed sentence-initially or at the end of a sentence. Thus it is possible that L2 learners of Chinese may be affected by L1 influence as they learn to use time phrases. My goal is to find out how immersion learners use these two structures and how their performance compares with adult learners. Earlier studies show that the *ba* construction is a difficult structure to acquire, while the placement of time phrases is relatively easy for them. Do immersion learners show the same pattern? This is one of the questions I will attempt to answer.

5.1 Previous Studies

5.1.1 The Ba-construction

In the *ba* construction, the object that normally occurs after the verb occurs pre-verbally, marked by *ba*, creating a Subject-Object-Verb word order. This is illustrated in (1). (1a)

illustrates a sentence in the canonical SVO word order, while (1b) is a *ba* sentence with the SOV word order.

(1) a. Wo xi-le wan

I wash-perf bowl

'I washed the bowl.'

b. Wo ba wan xi-le

I ba bowl wash-perf

'I washed the bowl.'

In terms of form, the predicate of the *ba* construction almost always carries some material in addition to the verb, e.g. a resultative phrase or a prepositional phrase. In (1b) above, the predicate contains a resultative compound verb. With respect to the *ba* object, it is usually definite or generic (Li and Thompson 1981). There has been abundant literature on the *ba* construction since as early as Wang (1957); as a result, we now have a good understanding of its syntactic, semantic and functional characteristics. The *ba* construction exhibits high transitivity (Thompson 1973, Sun 1995), which incorporates the concept of disposal (Wang 1957). Semantically, it often expresses the causative meaning (Sybesma 1992) and it also expresses a bounded event (Liu 1997). Additionally, the *ba* object has characteristics of a topic (Tsao 1987). As for how the *ba* construction is used in discourse, it is shown that the *ba* construction is often used when the *ba* NP carries old information but is not highly topical (Liu 2007).

What is more relevant to us is how the *ba* construction is acquired by L2 learners. There are a number of important issues that concern L2 acquisition of the *ba* construction. First, as

illustrated in (1) earlier, a sentence can often be expressed both as a SVO sentence and as a SOV sentence. Given that the SVO word order is more commonly used, and that the SOV word order is not always required, the question therefore arises whether L2 learners actually produce the *ba* construction. Another issue concerns whether L2 learners have acquired the constraints that are imposed on the *ba* construction, e.g. the *ba* predicate is not a bare verb, but a verb with more material which together expresses a bounded event (Liu 1997). Below I will review previous studies on L2 acquisition of the *ba* construction by adult learners. This will enable us to compare the acquisition by adults and young learners in immersion programs.

Du (2004) examined how L2 adult Chinese learners use the *ba* construction with resultative verb compounds (RVC) and *le* (perfective aspect). Since RVC and *le* are ways to express bounded events (Liu 1997), if learners associate *ba* with RVC and/or le, it would mean that learners have acquired some knowledge about the association between ba and boundedness. She used a production test and a grammaticality judgment test. 65 adult L2 learners were divided into three proficiency levels. Du found that the learners had knowledge of the complexity constraint on the *ba* VP; they performed well on the grammaticality judgment task. However, they did not use *ba* much. She also found that the learners produced bare verbs. Overall, L2 learners had difficulties producing the *ba*-construction although they have acquired some knowledge about *ba*. She suggested adopting the communicative approach to facilitate the use of *ba*.

Zhang (2002) also concerned whether L2 learners know the constraints associate with *ba*, including aspect marker *le*, verb selection, word order, directional complement, reduplication of the verb, and resultative compounds. She used a grammaticality judgment task, translation

task, and picture-cue production task to test six properties of *ba* including. The results show that *ba* acquisition follows a sequence the word order is acquired first followed by the use of the aspect marker *le* and verb selection. The use of directional complements, reduplication of the verb, and resultative compounds with *ba* is acquired even later. Acquisition of *ba* forms a U-shape. This conclusion is in accordance with Ke's (2005) study, who also found that learners in his study demonstrated a U-shape developmental with respect to the acquisition of *ba*.

Jin (1992) proposed that the *ba* construction manifests topic-prominent properties; therefore, acquisition of the *ba* construction by L1 English speakers would involve transfer from subject-prominent characteristics to topic-prominent characteristics. Her study was intended to find out whether L2 learners show such transfer effect. She considered three types of *ba* sentences (p. 35)

2) a. 我 把 饭 吃 完 了 S + O + V
wǒ bǎ fàn chī wán le
I *ba* food eat finished
'I finished eating the food.'

b. 他 把 桔子 剥 了 皮 S + NP + V + O
tā bǎ jú zi bō le pí
He *ba* orange peel ASP skin
'He peeled the skin of the orange.'

c. 我 把 屋子 堆 满 了 书 S + PP + V + O
wǒ bǎ wū zǐ duī mǎn le shū
I *ba* room fill ASP book
'I filled the room with books.'

All three sentences include a definite object, but they have different structures—(1a) has a word order of SOV, (1b) S-NP-V-O and (1c) S-PP-V-O. According to Jin (1992), the use of *ba* is determined by three factors: the definiteness of the *ba* NP, topicality of the *ba* NP and the

disposability of the VP. For her, (1a) manifests structurally dependent properties, while (1c) manifests pragmatically controlled properties and its use depends on context. In addition, (1a) has high transitivity, (1b) is less so, and (1c) is further lower in transitivity. It is predicted that (1a) will be easier for learners, while (1c) will be more difficult for learners, as it manifests more topic-prominent properties. She conducted a grammatical judgment task and a production task. The results supported her hypothesis—Learners acquired the *ba* sentences that can be understood by the structure earlier than the *ba* sentences that need to be understood in context. That is, L2 learners did better on sentences like (1a), and they had difficulty with sentences like (1c). This suggests L2 learners did show effect where they transferred subject-prominent properties to Chinese.

Wen (2012) addresses differences between the acquisition of *ba* by different proficiency levels and the differences between the acquisition of *ba* construction with different *ba* NPs. Wen focused on three types of *ba*, 1) *ba* NP is human; 2) *ba* NP is moved somewhere, and the sentence only shows the direction but not the location; 3) *ba* NP was moved somewhere, and the sentence shows the location. The results showed that in production there were significant differences between different proficiency levels, and the *ba*-construction that has a simple and transparent verb-complement was acquired first. Wen concluded that the simple structure of *ba*-construction was acquired earlier than the *ba*-construction that need to be understood contextually or in discourse, and the latter was acquired by the learners at a relative high level. This finding is similar to what Jin (1992) found except the two studies used different types of *ba* construction in the tests.

Xu's (2012) study is about which aspects of *ba* sentences learners acquire first. She focused on four *ba* properties: 1) pure syntactic constraint: word order; 2) syntax-semantics interface: the complex verb and the affectedness on *ba* NP; 3) syntax-discourse: the *ba* NP as a secondary topic constraint (p. 28-29). This study used grammaticality and contextual preference judgment to answer two research questions. First, amongst core syntax, syntax-semantics, syntax-discourse, which one did L2 learners master first? The results showed that learned core syntax first. Second, how well are L2 learners aware of the obligatory usage of *ba*? The results show that L2 did better with optional *ba*. This study thus supports both Jin (1992) and Wen (2012) in showing that L2 learners have less difficulty acquiring *ba*'s syntactic, structural properties, but they have difficulty acquiring discourse-related properties.

Huang & Yang (2004) want to find out which concept of *ba* is relatively easy for L2 learners. They used a judgment task, a changing sentence task, and a sentence making task to test how learners use telic and atelic predicates of *ba*, The results showed that the learners were conscious of the telic and atelic distinction; however, learners did not understand the concept of "disposal" (Wang 1957).

These six studies all focus on learning *ba* as by adult L2 learners. They focused on different aspect of *ba*. Du (2010) was concerned with the production of *ba* and the association between *ba* and RVC and *le*. She found that learners didn't use the *ba* construction much, but they did understand the constraints on *ba* VP. Jin (1992), Wen (2012), and Xu (2012) all compared different types of *ba*, from structural dependent *ba* sentences to sentences that are pragmatically controlled or discourse related. Although they looked at different types of *ba* sentences, the findings point to the same conclusion—L2 learners had an easier time with

structurally dependent properties of *ba*, but were not as good handling *ba* sentences that require contextual knowledge. Jin (1992) in addition showed that L1 English learners of Chinese were influenced by subject-prominent properties of English when they acquired the *ba* construction. Huang & Yang (2004) found that it was relatively easy for learners to understand the concept of telicity compared with the concept of disposal.

5.1.2 Placement of time phrases

In contrast to the *ba* construction, the placement of time phrases is considered relative easy for second language learners. To date the only study that looks at L2 acquisition of time phrase placement by adult learners is Jia & Liu (2016). I will review it briefly here.

The time phrase in Chinese can be placed before the subject, or after the subject but before the predicate, as in (3a) and (3b). It cannot be placed after the object, as in (4). This is different from English where the time phrase can be placed after the object, as can be seen in the gloss of (3a) and (4):

(3) a. 上 星 期六我们 去 看 了 一 场 电 影。
Shàng xīngqī liù wǒmen qù kàn-le yìchǎng diànyǐng
last Saturday we go see-PERF one-CL movie
'Last Saturday we went to see a movie.'

b. 我 们 上 星期六去看 了 一场 电 影。
Wǒmen shàng xīngqī liù qù kàn-le yìchǎng diànyǐng
we last Saturday go see-PERF one-CL movie
'We went to see a movie last Saturday.'

(4) *我 们 去 看 了 一 场 电 影 上 星 期六。
* Wǒmen qù kàn-le yìchǎng diànyǐng shàng xīngqī liù
we go see-PERF one- CL movie last Saturday
'We went to see a movie last Saturday.'

Concerning the internal structure of time phrases, the time phrases with “after” and “when” are also different between the two languages, as illustrated in (5-6):

(5) a. 三 点 以后
sān diǎn yǐ hòu
three o’clock after
‘after three o’clock’

b. *以后 三 点
*yǐhòu sān diǎn
after three o’clock
‘after three o’clock’ (Jia & Liu, 2016, p. 5)

(6) a. 看 电 视 的 时 候
kàn diànshì de shíhou
watch TV DE time
‘When (one) watches TV’

b. * (的) 时 候 看 电 视
* (de) shíhou kàn diànshì
DE time watch TV
‘When (one) watches TV’ (Jia & Liu, 2016, p. 5)

These examples show that “when” and “after” are at the beginning of the time phrases in English while they are at the end of the time phrases in Chinese. Thus two steps are involved learning time phrases, 1) knowing the expression of time phrases, and 2) knowing the position of time phrases in a sentence (p.5).

Jia & Liu (2016) conducted an experiment comparing learner performance on the placement of time phrases and locative phrases. They used an online test in which participants were asked to write a descriptive sentence for a set of pictures which were provided with key words and Pinyin. The results show that beginning level learners’ use of the time phrase was significantly better than their use of the locative phrase. The results also show that beginning level learners had difficulty with the time phrase with *de shíhou* phrase; On the other hand,

learners at the intermediate level performed well on both time phrases and locative phrases. By 2nd year Chinese most subjects performed on a par with native speakers on both time phrases and locative phrases. The findings therefore suggest that for beginning learners the time phrase is generally easier to acquire than the locative phrase.

5.2 The Present Study

One the basis of previous studies, we learned that for adult learners the *ba* construction is acquired at a stage past the beginning level, and even advanced learners do not use it much. On the other hand, the placement of the time phrase is learned relatively early; by 2nd year learners generally have a good handle of it, performing on a par with native speakers. The two phenomena therefore present a sharp contrast—a difficult construction that is used little and an easy construction that is mastered early. When we look at the immersion programs, the question naturally arises how learners in these programs handle the two structures. Do they show the same pattern as found in adult learners? What are the similarities and differences between the adult learners and young learners in immersion programs? This is what we will try to find out.

The research questions are as follows:

1) How do learners in the immersion program use the *ba*-construction and time phrases?

2) What are similarities and differences between adults in regular language programs and children in the immersion program?

3) What does the difference in performance between adult and immersion learners say about the effectiveness of immersion programs?

As mentioned in chapter 3, the participants for this study comes from one single class only—the Chinese immersion class, and the data is exclusively based on observation notes. These notes were taken during class time. I observed the class about four hours per week for 14 weeks, totaling 56 hours. I wrote down everything that was said in class, by both the teacher and the students. The dynamic interaction between the teacher and the students means that there may be utterances that I did not catch at the time, especially when more than one student competed for attention. Nonetheless, I managed to take down most of what was said. The report below is therefore representative of what was going on in the immersion class.

5.3 Findings

5.3.1 Ba-construction produced by students

12 *ba* sentences were produced by the students. They are discussed below, from (7) to (18). The 12 sentences can be divided into two groups, ones that were produced spontaneously and ones that were produced during a practice session. (7) - (11) are sentences produced during practice.

(7) 请 把 水壶 倒 在 那里
qǐng bǎ shuǐhú dào zài nàlǐ
please *ba* kettle pour at there
'Please pour the water over there'
(Feb. 19)

(8) 今天 我 把 老师 教 的 句子 练习 了 好 几 次
jīntiānwǒ bǎ lǎoshī jiào de jù zi liànxí le hǎo jǐ cì
today I *ba* teacher teach possessive sentence practice perfective marker several times
'Today I practiced several times the sentences that the teacher taught.'

(March 17)

(9) 把 一 封 信 给 北极 熊
bǎ yì fēng xìn gěi běi jí xióng
ba one measure word letter give polar bear
'give a letter to a polar bear'
(March 17)

(10) 我 们 把 瓶 子 推 倒
wǒmen bǎ píngzi tuī dǎo
we *ba* bottle push down
'we push the bottle down.'
(March 22)

(11) 把 水 送 给 北极 熊
bǎ shuǐ sòng gěi běi jí xióng
ba water give polar bear
'give a polar bear water'
(April 6)

(7) was produced by a 2nd grade student when the teacher asked them to make a sentence, although the target was not the *ba*-construction. The sentence is not considered spontaneous speech, and it was produced in response to the instructor's request.

(8) was produced when the students were doing a written exercise. The *Ba*-construction was the target of the exercise.

(9), (10) and (11) were produced by the same student, who is a 2nd grader. All three sentences were prompted by the instructor. Not much time was spent on practicing the *ba* construction in class. On the days that I observed the class, only 2nd graders had class practice on *ba*. As can be seen, only two students out of four responded to the teacher's prompt to produce *ba* sentences during the practice session. The rate of production was relatively low. However,

what they produced was appropriate in form—the predicate is complex, containing more than a bare verb, and they used a variety of material in the predicate to satisfy the requirement of a complex predicate, including RVC, locative phrase, quantity phrase, and prepositional phrase. In addition, there was no sentence where the *ba* construction was used with an incorrect form.

I now turn to *ba* sentences that were produced spontaneously, listed in (12) to (18).

(12) 我们 把 我们 书包 放 在 … 然后 去 bathroom
wǒmen bǎ wǒmen shūbāo fàng zài … ránhòu qù
we *ba* we (our) school bag leave in then go-
'we leave our school bags (there), then go to bathroom.'
(Feb. 11)

(13) 他 把 这 个 东 西 放…
tā bǎ zhè ge dōng xi fang
he *ba* this measure word thing put
'he left this one (here).'
(Feb. 11)

(14) 老师， ~ 没 有 把 他的 planner away
lǎoshī, ~ méiyǒu bǎ tā de
teacher, (someone) didn't *ba* his
'teacher, (someone) didn't leave his planner away.'
(Feb. 24)

(15) 我们 已 经 有 把 圈 词 圈 起来 和 我 们 不 知道
wǒmen yǐ jīng yǒu bǎ quān cí quān qǐ lái hé wǒmen bù zhīdào
we already have (did) *ba* target word circle and we not know
we have circled the target words and we don't know …
(March 25)

(16) 你们 把 这 一次 玩 完 了, 我 就…, 然 后 我 就 会 做 5 个 你 会 做
nǐmen bǎ zhè yīcì wán wánle, wǒ jiù…, ránhòu wǒ jiù huì zuò 5 gè nǐ huì zuò
you (plural) *ba* this time play finish I then then I then will do 5 measure word you will do
you finish this turn, then I will do five times, then you will do
(March 25)

(17) 罗 老师　　你　可以把 我 的 名字　擦了　吗
luō lǎoshī　nǐ　kěyǐ bǎ wǒ de míngzì cā le　ma
Luo teacher　you　can　*ba*　my　name　erase yes-no question word
Teacher Liu, can you erase my name?
(April 6)

(18) 我 要　　把 盘子 拿　这里 吧
wǒ yào　bǎ pánzi ná　zhèlǐ ba
I　should　*ba*　plate take here　model particle
Should I take the plate to here?
(May 3)

The seven sentences in (12) – (18), were produced spontaneously. Sentence (12) and (13) were produced on the first day of observation. Sentence (14) was produced by a 2nd grade student. The first three sentences, (12) – (14), were all produced even before the *ba* construction was introduced as a grammatical pattern in class. This suggests that some of the learners already have knowledge of the construction, and they were able to use it in daily activities. Sentence (15) and (16) were produced by a 4th grade student. At the time when (16) was produced some students were playing a game, and this student attempted to arrange the turns of playing. Sentence (17) and (18) were produced by a 2nd grade student on different occasions. When they were doing rehearsal for a play, the student attempted to establish where the plate should be.

Thus altogether the spontaneous sentences were produced by five learners. Considering the hours of class that were observed, the production of the *ba* construction is extremely low.

Looking at what was produced, the first two sentences were missing the locative phrase, but in the context what was conveyed was quite clear as the unexpressed locative phrase was conveyed by gesture. It is significant that the learners have associated *ba* with a locative context, which is one of the *ba* contexts. Three of the seven sentences produced spontaneously have a

locative context. Sentence (14) does not have a verb although it does have a resultative, which was expressed in English *away*. This is an error that we have not seen among L2 learners—none of the studies reviewed above mentioned errors of this type. However, omission of verbs is found frequently among L1 Chinese learners. Erbaugh (1982) reports that young children often produced sentences that only contain the result but not the action, e.g. *shang zhege* 'on this' rather than *ba zhege dai-shang* 'put this on'. It seems that for children expressing the result is more important than expressing the action that leads to the result. It is interesting that this error is also found among L2 Chinese immersion learners. What we do not know yet, however, is how strong the tendency is as this is the only case associated with *ba*. Aside from the missing locative phrase and missing verb, the predicate of the seven sentences is well-formed, satisfying the complex predicate requirement. This suggests that when learners in the immersion class did produce *ba*, they used it mostly correctly and appropriately.

There were also situations where *ba* could have been used but was not: Two cases concern an unexpressed object:

(19) 罗 老师　　没　有 人 要　　放 在 地上
luō lǎoshī　méi yǒu rén yào　fàng zài dìshàng
Luo teacher　nobody　want　put　on floor
'Teacher Luo, nobody wanted to leave it on the floor.'
(March 4)

Sentence (19) is produced by a 3rd grade student in response to the instructor's question in the form of the *ba*-construction, "这是谁把它放在地上，~ 是你吗? (who left it here on the floor, ~ is you?"

(20) 我 已经　　圈 起
wǒ yǐjīng　quān qǐ
I　already　circle

'I have circled it.'
(March 15)

Sentence (20) was produced by a 4th grade student. At that time, the instructor asked the students to circle a target word. The instructor did not use the *ba*-construction. (20) is incomplete, missing both the *ba* object and the directional complement. In both cases the missing words are retrievable from context. In fact, both sentences are acceptable without the use of *ba*. These examples do not represent failure to use *ba*; rather, they represent how learners use ellipsis in context. (21), on the other hand, is an error. The correct way to express 'Leave it here' is to use a *ba* sentence. The learner who produced the sentence could have been affected by their L1 English.

(21) 放 它 在 这 里
fàng tā zài zhè lǐ
put it in here
'leave it here'
(March 22)

5.3.2 Ba-construction produced by the instructor

In contrast to low frequency of the *ba* construction by the learners, the instructor of the immersion class produced a large number of *ba* sentences. Table 11 shows the times that *ba*-construction appeared in the teacher's speaking in each observation class. These *ba*-constructions were in sentences or clauses.

Table 11
The times of ba used each observation day

Date	Times
Feb. 11	25
Feb. 12	9
Feb. 18	13
Feb. 19	24

Feb. 24	14
March 3	14
March 4	22
March 9	6
March 15	29
March 16	10
March 17	15
March 21	9
March 22	6
March 24	8
March 25	8
April 4	10
April 5	0
April 6	7
April 12	16
April 15	9
April 21	10
April 27	2
April 29	3
May 3	5
May 4	2
May 11	2
May 12	7
May 13	2
Total	287

Table 12 shows that with the exception April 5, the teacher used *ba*-construction in each class when I observed, totaling 287 times. On April 5, the observation time was only 30 minutes, and the class activities were reviewing words, watching a video, and assigning the roles of a skit.

Although possibly not all utterances of *ba*-sentences were written down in each observation class, it is obvious that the *ba*-construction was commonly used by the teacher.

Table 12
The different types of sentences with ba-construction in the teacher's talking

	Types	Times
1	Imperative sentence – ask the students to do something	231
2	Sentences to suggest the students to do something	5

3	Negative imperative sentence – ask the students not to do something	3
4	Yes-no questions	8
5	Question-word questions	9
6	Statement	27
7	Others – example sentences in vocabulary quizzes or texts	4
8	Total	287

I divide all of the *ba* sentences used by the instructor into sentence types, listed in Table 10. 231 out of 287 sentences were imperative sentences. The instructor gave commands in the form of the *ba* construction, such as asking students to sort out their reading materials, punch their materials, put them in their files, and so on, as illustrated below.

(22) 把它 放 好
bǎ tā fàng hǎo
ba it put
'put it in a right way'

(23) 把它擦干净
bǎ tā cā gānjìng
ba it clean
'clean it"

(24) 把 笔 给 我
bǎ bǐ gěi wǒ
ba pen give me
'give the pen to me'

Sometimes the instructor used *ba* when it is optional, e.g. (25) a. could also be expressed as (25) b. When the instructor repeated her requests, she used the *ba*-construction again, but sometimes she repeated with a non-*ba* sentence.

(25) a. 把 名 字 写 上
bǎ míngzì xiě shàng
ba name write down
'write your name'
b. 写 上 名 字
xiě shàng míngzì

write down name
'write down your name'

Appendix L lists the instructor's *ba* sentences in all types except for imperatives. In Table 8, the second type is sentences that suggest the students to do something. This type is a little different from imperative sentence, as it is an entire sentence with subject and the tone is less strong than imperative sentences. (26) is an example.

(26) 你 今天 要 把 仓鼠 带 回 家 哦
nǐ jīntiān yào bǎ cāngshǔ dài huí jiā ó
you today will/need *ba* hamster take back home model particle
'today you are supposed to take the hamster back to your home.'

The third type is negative imperative sentence. The instructor asked the students not to do something. (27) is an example.

(27) 你们 不要 把 我的 都 用 完 了
nǐmen bùyào bǎ wǒ de dōu yòng wán le
you (plural) don't *ba* mine all use done
'don't use all of mine.'

Sentence (28) is another example of the third type, but it is a positive form and expresses a negative meaning.

(28) 你 小心 把 人 砸到
nǐ xiǎoxīn bǎ rén zá dào
you careful *ba* people break
'be careful, and don't hurt others'

Although the sentence does not show a negative form, the student understood the negative meaning, as she answered that "I am a person who is careful" in Chinese. The fourth type is yes-no questions, and the fifth type is question-word questions. (29) and (30) are examples of the two types respectively.

(29) 这个 星期 该 你 把 仓鼠 带 回 家 吗
zhège xīngqí gāi nǐ bǎ cāngshǔ dài huí jiā ma

this week should you *ba* hamster take back home yes-no question word
Is your turn to take the hamster back to your home this week?

(30) 是 谁 把 纸 丢 在 这 里 的
shì shuí bǎ zhǐ diū zài zhèlǐ de
is who *ba* paper lose in here (sentence structure particle)
'Who left the paper here?"

The sixth type is statements. Except for imperative sentences, the *ba* sentences used by the instructor were mostly of this type, 27 times in all. The instructor used this type of *ba* sentences to express what the class will do together, what the instructor or the students did, and what the instructor can or will do, etc. Sentences (31), (32), and (33) are examples.

(31) 我 已经 把 它 擦 好 了
wǒ yǐjīng bǎ tā cā hǎole
I already *ba* it clean done
'I have cleaned it.'

(32) 你 把 它 做 完了， 我 就 把 名字 擦掉。
nǐ bǎ tā zuò wánliǎo, wǒ jiù bǎ míngzì cā diào
you *ba* it do done I then *ba* name erase
'If you can finish it, I will erase your name.'

(33) 你 再 唱 歌，我 就 把 你 送 到 校长 办 公 室 去
nǐ zài chànggē, wǒ jiù ba nǐ sòng dào xiàozhǎng bàngōngshì qù
you again sing I then *ba* you send to principal office go
'If you will sing again, I will send you to the principal office.'

(34) 把 球赛 换 成 电 视剧 的 换
bǎ qiúsài huàn chéng diànshìjù de huàn
ba ball game change to drama possessive change
'The "switch" is the one in the sentence that "switch ball game to drama.'

Sentence (34) was produced when the 3rd grade students were asked to write the character "change" in their vocabulary quiz. Although the *ba*-construction was not the target of

the test, the instructor used it to give test instructions. This shows that the students' understanding of the *ba* construction was at a high level.

5.3.3 Time phrases used by the students

The learners produced a large number of time phrases, 97 in all, listed in Appendix J. These sentences are oral exercises with time expression structures.

The 97 sentences with simple pre-verbal time phrases in learner speech can be divided into three types: spontaneous sentences; spontaneous sentences produced during practice, but without a given structure; non spontaneous sentences produced when practicing a given structure. Table 11 shows the details. There are 44 spontaneous sentences, and in 17 of them the time phrase was placed incorrectly, at the end of a sentence. There are 15 "spontaneous sentences during practice", and there was only one error. There were also 38 sentences that were produced during practice, and one is incorrect. With the exception of the correct "not spontaneous sentences", table 10 lists the sentence numbers for each type in the last column. The sentence numbers are from Appendix J, which lists sentences with time phrases learners produced. The followings are examples of each type.

Spontaneous sentences:

(35) 我 们 今天 要 洗 笼子 吗?
wǒmen jīntiān yào xǐ lóngzi ma
we today need to wash cage question particle
'Do we need to wash the cage today?'

(36) 我 可以 做 电 子 书 今天?
wǒ kě yǐ zuò diànzǐ shū jīntiān
I may do e-book today
'May I use e-book today?'

Spontaneous sentences produced during practice:

(37) 我 长 大以后 要 做 古人类学 家。
wǒ zhǎng dà yǐhòu yào zuò gǔ rénlèi xué jiā
I grew up after want to be ancient anthropologist
'I want to be an ancient anthropologist after I grew up.'

(38) 我 刷 牙 每天
wǒ shuā yá měitiān
I brush teeth every day
'I brush teeth every day.'

Non spontaneous sentences produced when practicing a given structure:

(39) 我 今天 不 太 高 兴
wǒ jīntiān bù tài gāoxìng
I today not very happy
'I am not very happy today.'

(40) 我做 那个和 我也 做 这个… 星期五 和我不可以去 Chinese club
wǒ zuò nàgè hé wǒ yě zuò zhège…xīngqíwǔ hé wǒ bù kěyǐ qù
I do that and I also do this Friday and I not may go
'I did that and I also did this on Friday, and I cannot go to Chinese club.'

Sentence (35) was produced at a time of playing with a hamster. (37) and (38) are spontaneous sentences during practice. Sentence (37) was produced by a 2nd grade student at the end of the class when the teacher asked the class what they learned on that day. Sentence (38) is an error; it was produced by a 1st grade student when the teacher asked the same question at the end of the class but on a different day. This sentence was practiced in class when students were studying the text, which is about daily life. However, right after the class, the student continued to place the time phrase "今天 today" at the end of a sentence. The teacher immediately corrected him, and then he repeated the correct sentence. (39) and (40) are not spontaneous sentences. Sentence (39) was produced during class activity, which was "今天你高兴吗？ Are you happy today?" The teacher asked each student the question in Chinese. Sentence (40) is an

error, which was produced by a 3rd grade student in class activity, which was "你春假做了什么？ what did you do in spring break?" The question was written on the whiteboard in Chinese. In sentence (40) the time phrase is in the middle of two sentences; it "星期五 Friday" was analyzed as belonging to the first sentence, because this student used "和 and" right after the time phrase to connect the two sentences.

Table 13
The sentences with simple pre-verbal time phrases in the students' speaking

Types		Sub-types		Sentences #
Spontaneous sentences	44	correct	27	3,5,38,39,40,41,42,43,44,45,48,49,50,52, 63,64,65,70,75,77,78,88,93,94,95,96,97
		incorrect	17	1,2,6,11,37,47,51,60,61,62,66,67,69,73,74, 82,83,
Spontaneous sentences during practice	15	correct	14	4,7,8,9,10,53,57,58,59,72,84,86,87,92,
		incorrect	1	71
Non spontaneous sentences	38	correct	37	
		incorrect	1	55
Total	97			

Sentences (41), (42), and (43) represent three types of errors in the students' time-phrases sentences. Students in all four grades produced incorrect sentences. In sentence (41), "(after), 以后, *yi hou*" should be placed before "(do), 做, *zuo*". Based on the context, the student wanted to ask if he could do something after another student. This student attempted to use English at the end of the sentence. In sentence (42), the student made a simple mistake, placing "yesterday" at the end of the sentence. In sentence (43), there are two errors. First, it misses "的时候, *de shi hou*, (when)" or "时, *shi*, (when)". Second, the time phrase was placed at the end of the sentence.

(41) 我 可 以 做 after…
wǒ kě yǐ zuò

I may do
'May I do it after …'

(42) 我 买 了 这 个 昨 天
wǒ mǎi le zhè ge zuó tiān
I buy perfective marker this yesterday
'I bought this one yesterday.'

(43) 张 老 师 教 过 我 们 谈 天 在 二 年 级
zhāng lǎo shī jiào guò wǒ men tán tiān zài èr nián jí
Zhang teacher teach past we chat in second grade
'Teacher Zhang taught us the word chat (when we were) in the second grade.'

Overall, the learners produced a large number of time phrases, both spontaneously and in practice. The accuracy rate is quite high, about 80%. They had more problems in spontaneous speech, when they suffered from L1 influence; in practice, their performance was almost perfect.

5.3.4 Time phrases used by the instructor

The instructor also produced a large number of time phrases, 72 in total, although in comparison to the learners, the number is smaller. This is listed in Appendix K. Here are some examples:

(44) 你们 昨天 整 理 了 资 料 夹
nǐmen zuótiān zhěng lǐ le zī liào jiā
you (plural) yesterday organize perfective marker files
'you have organized your files yesterday.'

(45) 今天 我 要 教 你 们 这 一 课
jīntiān wǒ yào jiāo nǐmen zhè yī kè
today I will teach you (plural) this lesson
'today I will teach you this lesson.'

(46) 你 长 大 以 后 想 做 什 么
nǐ zhǎng dà yǐ hòu xiǎng zuò shénme
you grow up after want do what

what do you want to do after you grow up?

(47) 你们 出去 的 时候 要 说 一 个 句子
nǐmen chūqù de shíhou yào shuō yī gè jù zi
you (plural) go out possessive time need say one measure word sentence
'When you go out, you need to say a sentence.'

The 72 time phrases produced by the instructor is less than the 287 sentences with *ba*-construction that she used.

5.4 Discussion

We now return to the three research questions posted earlier:

1) How do learners in the immersion program use the *ba*-construction and time phrases?

2) What are similarities and differences between adults in regular language programs and children in the immersion program?

3) What does the difference in performance between adults and immersion learners say about the effectiveness of immersion programs?

5.4.1 Learner performance

The first thing we noticed when we compare the use of the *ba* construction and the use of time phrases by the learners in the immersion class is that there is a strong contrast in frequency between the two phrases. During my observation time, the learners only produced 12 *ba* sentences, while they produced 97 time phrases. The large discrepancy is likely due to the fact that when an event occurs is often an integral part of daily conversation and therefore we would expect its number to be high. What is perhaps more surprising is the low number of *ba* sentences. One possibility is that the *ba* construction varies with a sentence in the canonical SVO order; one

can describe an event without using the *ba* construction. Thus learners who have not acquired *ba* and are not comfortable using *ba* may simply resort to the SVO structure. It is also possible that there were few occasions for the use of *ba*. At the moment I am not sure which factor is stronger. It could be that both contributed to the low frequency of *ba*.

In terms of accuracy, however, the *ba* construction had a higher accuracy rate than the time phrase. Of 12 tokens of the *ba* construction, two were incomplete and the missing information was clear from context. They are not considered errors. Only one *ba* sentence produced includes an error, (没有把他的 planner away), which has a missing verb. Earlier it was mentioned that children in L1 acquisition also make this type of errors often. The other nine sentences were accurate in form. In particular, they all met the requirement that the predicate includes more than a bare verb. The material that was added to the verb including locative phrases, resultative complement, quantity complement. We can conclude that learners had a good knowledge of the *ba* construction—when they did use it, it was used mostly correctly. In addition, all 12 *ba* sentences were used appropriately in the context. Earlier it was mentioned that a corpus study (Liu 2007) showed that in adult language the *ba* construction is used when the *ba* NP carries old information and is not highly topical. When we look at the contexts in which the *ba* sentences were produced spontaneously, we can confirm indeed all of the *ba* NPs are old, e.g. *shubao* ‘school bag’, *ci* ‘word’, *panzi* ‘plate’; furthermore, they are not topical--the topic that is being continued in each sentence is the subject. Thus it is remarkable that the learners in the immersion class produced mostly grammatical accurate and completely contextually appropriate *ba* sentences.

When we look at the accuracy of time phrases, we notice that learners made considerable number of errors, especially in the spontaneous production—17 out of 44 (39%) of spontaneously produced time phrases were placed wrongly, at the end of a sentence. For example, when the students were asked to say what they learned that day, one 1st grade student made a mistake, placed the time phrase at the end of the sentence in Chinese. On the other hand, the learners did almost perfect in practice sessions, only 1 out of 39 was an error (2.5%). An obvious source for the errors is L1 influence. Since these learners use English daily, outside of the immersion context, the word order of English is likely to interfere when they speak Chinese.

Does L1 influence also affect the use of the *ba* construction by learners? It is likely that L1 influence contributed to the low frequency of the *ba* construction in learners' production, since English does not have a construction comparable to the *ba* construction. However, L1 influence does not seem to have much to do with the constraints on the *ba* construction; the requirement on the predicate, for example, is part of construction itself that needs to be learned. This might explain why immersion learners produced mostly well-formed *ba* sentences. They have knowledge of the requirement on the *ba* construction and there is no effect from English that could interfere this knowledge.

We can also compare the acquisition of the two constructions with respect to the input learners received in class, which includes teacher talk and the amount of practice that was devoted to the two constructions. Earlier we saw that the instructor produced 287 *ba* sentences in class; it looks like the instructor put in much effort using the *ba* construction in class. In contrast, she only produced 72 time phrases. On the other hand, the *ba* construction was not practiced much in class; only 2nd grade students practiced *ba* in as a grammatical pattern, whereas a

considerable amount of time was devoted to the time phrase in class. Out of 97 time phrases produced by learners, 40 were produced during class practice. During daily topic questions, each student had an opportunity to use a time phrase. Every day after class the teacher asked "what did you learn today" in Chinese. The fact that with daily use of the time phrase there was still such a high rate of errors shows the strong effect of L1 influence—it seems to overpower the effect of the input.

An important criterion for whether learners have acquired a grammatical structure is whether they are able to use the structure spontaneously. The learners produced both constructions spontaneously, seven *ba* sentences and 44 time phrases. Three of the seven spontaneous sentences were produced even before *ba* was practiced in class as a grammatical pattern, suggesting that some of the learners already had knowledge of the construction. However, given *ba*'s low frequency in learners' speech, we cannot yet conclude that learners in general are able to use *ba* freely. In contrast, the evidence for the time phrase is much stronger. In terms of both the time phrases produced and the number of learners that produced it, we can come to the conclusion that the learners do use the time phrase freely and spontaneously. However, it should be noted that using the time phrase spontaneously is not a difficult task for L2 learners; it does not quite compare with using a new construction that does not exist in their native language.

To summarize, immersion learners produced a lot of time phrases and few *ba* sentences. They made many errors in the placement of time phrases, while their accuracy of *ba* sentences was quite high. There were more tokens of *ba* sentences than time phrases in teacher talk, but in

class more time was devoted to practicing the placement of time phrases than the use of *ba* sentences. Finally, learners produced both phrases spontaneously.

The fact that immersion learners are able to use grammatical patterns spontaneously and at the same time produce errors due to L1 influence suggests that their language learning experience is neither like adult learners in the classroom, who may not be able to produce the *ba* construction spontaneously, nor like L1 learners, who are not affected by L1 influence. They are a separate groups learners with their own traits.

5.4.2 Comparison with adult learners

The data produced by the learners in the immersion class provides a useful reference for us to compare the acquisition of Chinese between adult learners and immersion learners. The contexts under which the two groups acquire Chinese are quite different—one in college classrooms and the other in an immersion context; nonetheless, it is interesting to see if the two groups share some features. I compare the two groups on two aspects: frequency and accuracy. The other aspects, e.g. input in class and spontaneous use, cannot be compared because of lack of data on adult learners. For the adult data, I rely on studies reviewed above in section 5.1; in particular I will rely on Du's (2004) study on *ba* and Jia and Liu's (2016) study on the time phrase.

First, in terms how much *ba* is used, adult learners and immersion learners are similar—both groups tend not to use the *ba* construction. In the case of the adults, we do not have data from spontaneous contexts; rather, what we have is a controlled experiment. In Du's (2004) study, subjects were asked to describe two pictures. The average production rate was low (2.1

out of 10). Whether this is due to avoidance (because the same picture can be described without the use of the *ba* construction) or to lack of knowledge is difficult to know. The low frequency of *ba* in both groups may indeed be an indicator that the *ba* construction is a difficult construction for L2 learners in general.

As for accuracy, the adult learners in Du's (2004) study made a number of errors, illustrated below:

(48) 然 后 把 信 撕 … 然 后 撕 … 撕 … 信
ránhòu bǎ xìn sī… ránhòu sī sī xìn
then *ba* letter tear then tear tear letter
then tore the letter

(49) 她 先 … 洗手， 然后 用… 纸… 把 手 擦… 不 知 道 怎么 说
tā xiān…xǐshǒu, ránhòu yòng…zhǐ… bǎ shǒu cā… bù zhīdào zěnme shuō
she first wash hand, and then use paper *ba* hand wipe not know how say
She first washed her hand, and then used paper to wipe hand … don't know how to say it

(Du, 2010, p. 22)

In (48) the first half reflects that the subject attempted to use the *ba*-construction, but it was incomplete. The subject then changed the word order back to SVO and produced a sentence without *ba*. This shows that the subject attempted to use *ba* but did not know how to use it correctly; therefore it was probably easier not to use *ba*. Sentence (49) demonstrates a similar situation - the subject also attempted to use *ba*, but had to stop because he realized he couldn't complete the *ba* sentence. Both examples demonstrate that the subjects were aware there needs to be some material besides the verb in the *ba* predicate although they were not able to produce the material.

In contrast, there were few errors among immersion learners. The only error that was found in my data is omission of the verb, given in (14) above. This seems to suggest that

immersion learners have a better handle of the *ba* construction—the additional material required after the verb is not a challenge to these learners, and the learners produced mostly produced perfect *ba* sentences.

We are not able to compare the use of the time phrase in terms of frequency between the two groups. There is no data on how often time phrases are used by adults, as the only study available so far, Jia and Liu (2016), was not concerned with this issue; their focus, rather, was on the placement of the time phrase. In their study, subjects were asked to describe pictures with provided phrases, and for each picture the time phrase was always provided. Therefore, if subjects followed the instruction, each sentence they produced would have a time phrase. Even so, based on my own teaching experience, the use of time phrases is not difficult for adult learners. Time phrases are used often by students at all proficiency levels.

In terms of accuracy, in adult learner data, Jia and Liu (2016) found some instances in their data where the time phrase was placed incorrectly. The following are examples.

(50) 她 请 他 吃 饭 明 天
tā qǐng tā chī fàn míngtiān
she invite him eat food tomorrow
She invites him to a meal tomorrow.

(51) 他以后 写 信 睡 觉 了
tā yǐhòu xiě xìn shuìjiào le
he after write letter sleep PRT
He wrote a letter and went to sleep.

(Jia and Liu, 2016, p. 19)

(52) 我 常 常 时候 开 会 睡 觉
wǒ chángcháng shíhou kāihuì shuìjiào
I often when have meeting sleep
'I often sleep when I'm in a meeting.'

(Jia and Liu, 2016, p.21)

In sentence (50), the time phrase was placed at the end of the sentence. In sentence (51), the time phrase "以后写信 yǐhòu xiě xìn" is in a right place, but the time phrase itself is not in a right order in Chinese. The subject used English word order to express the time phrase in Chinese. In sentence (52), the time phrase "时候开会 when having a meeting" is placed appropriately, but the time phrase itself is not correct.

However, the three types of errors are few among adult learners. In Jia & Liu's (2016) experiment, there were 13 sentences with errors of 270 produced sentences with time phrases, which were produced by 54 second language learners who had taken Chinese class less than two years, and the error rate is 4.81%. Immersion learners showed a different pattern. First, there was a relatively high error rate, 39% (17/44), when they produced the time phrase spontaneously. The time phrase was placed at the end of a sentence, suggesting strong influence from L1. The second and third types of errors, illustrated in (51) and (52) above, was not found among immersion learners. The immersion learners could correctly say "长大以后 after growing up" without any error in their sentences, which was a target point of their class activity. However, sometimes they use English words "while" or avoid to say it in the temporal expression of "的时候 when/while", which also reflected strong influence from L1. Sentence (53) is an example of immersion students' sentence with this error.

(53) 我 们 可以 看 while 我 们 做 这个 吗
wǒmen kěyǐ kàn while wǒmen zuò zhège ma
We may look at while we do this question particle
'May we look at (it) while we are doing this?'
(p.185 in observation notes)

Over all, a comparison between adult and immersion learners shows that neither group produced many *ba* sentences, but when they did produce it, immersion learners' performance was almost flawless while adult learners made a number of errors. With respect to the placement of time phrases, adult learners performed well, with few errors, while immersion learners made a large number of errors. Thus it seems that the *ba* construction is more difficult for adult learners, while a correct placement of time phrases is a challenge for immersion learners.

5.4.3 Evaluation of immersion programs

Finally, we address the issue of whether immersion programs offer advantages over regular language programs with respect to language knowledge. On the basis of learner performance of the *ba* construction and time phrases, can we conclude that immersion learners have acquired more language knowledge than learners in regular language programs? We will not be able to answer this question conclusively, since in order to do so, we will need similar data from K-12 regular language programs, in particular, how learners in the latter programs use the *ba* construction and time phrases. At the moment we do not yet have such data. Based on how immersion learners used the two grammatical constructions in class, however, it is clear that learners have acquired linguistic knowledge that learners in other programs have not.

In the immersion Chinese class that I observed Chinese is not only the target language, it is also the language of communication. Besides learning grammatical patterns in class, learners used Chinese to communicate with the teacher and among themselves. Chinese was used to react to instructor requests, activities performed by fellow classmates, call attention to themselves, complain to the instructor, etc. This is obvious in their use of the *ba* construction. Learners used

ba in various contexts—telling on someone who did not put their planner away, asking for one more game play, suggesting putting something somewhere, etc. That is, they used the *ba* construction to communicate in exactly the same way they used English at home. This ability is noticeably absent among most adult learners. Even in an advanced Chinese class, it is rare that adult learners would produce a *ba* sentence without prompting from the instructor. Therefore, the immersion program is clearly more advantageous than a regular language program, where learners spend much time drilling on grammatical patterns but are not necessarily able to use them.

However, being in an immersion program does not mean learners will acquire the target language like native speakers. Learners will continue to be affected by the influence of their native language and make errors. This is clearly seen in the way learners in the class I observed used time phrases. While they produced time phrases spontaneously, they also made many errors, placing the phrases at the end of a sentence. The interference effect seems rather strong with these learners. In contrast, the placement of time phrases is not a challenge to adult learners who make few errors in this area (Jia and Liu 2016). At this time we do not know at what stage immersion learners will recover from the L1 influence. This is something to find out in future study. We also don't quite understand why it is the case that adult learners do not have much difficulty with the placement of time phrases, i.e. why L1 influence does not seem to have as much effect on them. Further research is needed in this area.

CHAPTER 6: COMPUTER ASSISTED TEACHING AND CHARACTER LEARNING

6.1 Introduction

The third study that I conduct in this dissertation concerns how computer assisted methods play a role in character learning. I will evaluate the effect of computer-assisted materials on character learning among immersion learners as well as heritage learners. The method I will use is qualitative, including observation, questionnaires, interviews and student tests.

Learning Chinese characters, including recognition, comprehension, and writing, poses several challenges for all students of Chinese language. Recognition involves knowing both the proper pronunciation of a character and its meanings, while writing means being able to properly reproduce a character from memory without cues. Chinese characters are logographic (Fromkin et al, 2007); they provide comparatively fewer phonological clues compared with an alphabetic writing system (DeFrancis, 1984; Everson, 1994). As a result, linking the recognition and pronunciation of a character is relatively difficult.

The generally accepted method of teaching Chinese characters asks students to write characters several times as homework in a workbook following examples where reference characters have the strokes numbered in the proper order. However, learners may not connect pronunciation and meaning with characters after finishing the homework. In addition, in this method it seems that learners continue to struggle with proper stroke order in character writing. In this chapter, I will first review previous studies, including the discussion of the effects of phonological and orthographic information on the process of learning characters, immersion students' acquisition of characters, and computer-assisted methods and materials in teaching

characters. After presenting the research questions, I will present the findings from observation, interviews and questionnaires and the results of pre-tests and a post-test.

6.2 Previous Studies

In the study of character learning, researchers have been concerned with the following issues: the relationship between phonological information and character recognition, the effect of the semantic radical, the usefulness of writing practice, and computer assisted methods for character learning. I will review these issues below.

On the issue of the relationship between phonological information and character recognition, Chen, Flores d'Arcais and Cheung (1995) performed two experiments to test if phonological information is automatically activated in character recognition. The subjects' native language is Cantonese, and the test is in traditional Chinese characters. In the first experiment, 24 subjects participated in a semantic-categorization task, and the purpose of the experiment was to find out whether phonological information influenced a semantic-decision task. The test was on a screen. Each subject saw a category name that was followed by a character. The subjects were asked to decide if the target character belonged to the given category. Each subject saw 122 characters, which include 20 homophonic distractors, 20 controls, 41 filler characters that belong to the given category, and 41 filler characters that do not (p. 147). The homophonic distractors and their controls are similar graphically, sharing one major component of a character or the radical, but their meanings and pronunciations are different. The homophonic distractors and the corresponding filler characters that belong to the given category had similar pronunciation, which represents phonological information. In the experiment 11 of 24 subjects made no errors,

and13 subjects made errors, but the errors were not wrongly deciding the homophonic distractor or their controls that belong to the given category. The results showed that the subjects could accurately make decisions on semantic categorization, and phonological information did not have much effect in the process.

In the second experiment, 24 new subjects who had the same background as the subjects in the first experiment participated in 10 experimental sets. Each set includes a phonological distractor, a phonetic control, a graphical distractor, and a graphical control. The phonological distractors and the corresponding phonetic controls were chosen from experiment 1. As for the graphical distractors and the corresponding controls, their meanings and visual forms are different but either their vowel or consonant is the same. There 11, 9, and 6 subjects made errors in deciding the phonological distractor, phonological control, and graphic control respectively. This showed that graphic information helped subjects decide the meaning of a target character but phonological information did not. Therefore, while a reader might be able to guess the meaning of a character, its pronunciation would still be unclear.

Another issue that previous studies have been concerned with is the effect of semantic radical. This issue concerns the role of a radical's semantic information in character reading. Tong & Yip's (2014) studied radical sensitivity, which refers to whether Chinese learners rely on radicals' semantic information in character recognition more than other information, such as orthographic or phonological information. The purpose of the study was to find out what information of characters was used by learners in reading and which information was used the most.

They tested 84 adults Chinese learners on a picture-character mapping task. The results showed that Chinese as foreign language (CFL) learners relied on semantic radicals more than phonetic radicals in character identification. Another study that also investigated the effect of semantic information is Williams (2013)'s experiment. He also found that CFL learners were good at using semantic information, instead of phonological information when recognizing and interpreting Chinese characters.

Besides investigating whether Chinese learners use semantic meaning in learning character, scholars also studied whether the way of using semantic meaning is good for teaching Chinese characters. Xu & Padilla (2013) tested the method of meaningful interpretation and chunking[4] (MIC), which used meaningful background information of radicals and characters to teach Chinese characters. This study suggests that MIC was effective in improving Chinese character learning. This result also suggested that orthographic information had more effect on character recognition than phonological information did.

The usefulness of writing practice is another area of research on character learning. Knell & West (2015) conducted an experiment on first grade students in a Chinese immersion program. Character writing practice instruction and character recognition instruction were used in two separate groups. The subjects were given an oral character identification test, a character selection test, a writing test, and a questionnaire about the subjects' attitudes toward reading and writing characters. The results of the character identification test, which required the subjects to read target characters, showed that the group with writing practice instruction performed

[4] In Xu & Padilla (2013) explained that "Chunking … refers to processing small units of information (chunks) and grouping them into large, meaningful units … (p. 404)."

significantly better than the other group. This study strongly suggests that writing practice is an effective way to improve the reading skills of learners. The researchers did not agree with the "Read First, Write Later" philosophy. It was thought that spending time on character writing practice could help learners recognize characters.

Two other studies also investigated the efficiency of writing practice and the conclusions all present the effectiveness of writing practice in character learning. Guan, Liu, et al (2011) conducted two experiments on adult learners and found that writing practice can strengthen character reading by adult learners. In one experiment subjects were asked to learn characters under two separate conditions, reading-only and handwriting. The other experiment added one condition, Pinyin typing. Subjects were divided into two groups, one group with only handwriting while the other group with Pinyin typing one day and handwriting on the alternate day. In the first experiment, the subjects performed better in the handwriting condition than in the reading condition when it came to recognizing characters and knowing their meanings. In the second experiment, the handwriting group still performed better than the other group on character recognizing and understanding meanings, while the group with handwriting and Pinyin typing training showed better performance on knowing pronunciation and connecting character's pronunciation, meaning, and orthographic information. This study suggests that writing practice has a measurable effect on character learning, including both meaning and pronunciation. Xu, Chang, Zhang, & Perfetti, C. A. (2013) conducted a similar experiment of adult learners and received the same result where writing practice benefits reading in the character learning process (p. 432). In the experiment, subjects were divided into three groups, with each group needing to learn three identical lists of 250 vocabulary items. Each group had three conditions, reading,

animation, and writing to learn the three lists of vocabulary, but the three groups had different conditions. The results show that besides the effect of writing practice in character recognition and writing, animation can better help learners connect orthographic information and meaning than writing practice alone, demonstrating the effect of a computer assisted method in character learning.

Another area of research is concerned with experimental studies of computer assisted methods for character learning. Computer-assisted methods and materials both provide a student-centered environment for learners to practice foreign language learning (Ariew, 1991). There are not many comparison studies of computer-assisted methods in Chinese teaching (Grhurovic, Chapelle, & Shelley, 2013). Lu, Hallman & Black (2013) did an experiment to study how to teach students new characters. This study tested 36 undergraduate and graduate students who did not have any Chinese learning experience. They were randomly divided into three groups: a Traditional Learning (TL) group, an Animation Learning (AL) group, and an Embodied Animation Learning (EAL) group. In the TL group, the participants received a character's pronunciation, meaning, and form, without video. In the AL group, the participants received the above information and "a video that shows an animation of character's etymological form changes (p.4)." In the EAL group, participants received the same input as the TL group and "a video that not only shows an animation of the character's etymological form changes but also human bodily movements, actions, or gestures that depict both the semantic meaning and written form of the character (p. 4)." The results of an immediate test showed that the three groups were significantly different, and that the EAL group had the best performance. These results are similar to the studies that showed context is useful in learning Chinese characters, and

demonstrated the advantages of computer-assisted materials. The computer assisted program that provided video context was useful in reinforcing the understanding of the characters while non-computer materials were not as clear. However, this study was a one-time experiment, and the participants were not Chinese language learners. As a result, this study did not show the effects of computer-assisted materials or methods among regular Chinese learners.

All of the studies reviewed above are quantitative studies.

6.3 The Present Study

The present study will analyze how effective computer-assisted materials and methods are in character learning. I will compare heritage and non-heritage immersion students, who used computer-assisted methods in different ways. Different from the studies reviewed above, my study is qualitative, mainly due to the type of data that I was able to collect. My research questions are as follows:

1) Do the teachers and students in the two programs think computer-assisted methods help children who have relatively high Chinese input learn Chinese characters?

2) How do the methods help them learn Chinese characters?

3) What is the relationship between computer-assisted methods and character learning?

'Help' in question 1 is meant to include improving students' learning outcomes and making students feel the process of learning is relatively easy.

Participants for this study include 3rd and 4th grade students from Desert Hill School, who are non-heritage learners, in the immersion Chinese class, and students from Lincoln School weekend class, who are heritage learners. Altogether there are 13 student participants. In

addition, 2 teachers and 13 parents also participated. I adopted four methods for this study, observation, questionnaires, interviews, and tests. Student participants took pre-tests twice and a post-test at the end of the semester. The immersion learners took the tests in class, while the weekend class students took the first pre-test at home with parental supervision, and the second pre-test and the post-test in class. However, the class time was limited and was not sufficient for test completion. Some students completed the test at home after starting them in class. The reading and writing portions of the Youth Chinese Test (YCT) level 3 and level 4, an international standardized test of Chinese language proficiency, were used as the two pre-tests and one post-test. The YCT level 3 has Pinyin and all questions are multiple choice. YCT level 4 does not have any Pinyin and includes questions that require writing using only characters. The results of interviews and questionnaires were used to analyze the pre and post-tests.

6.4 Findings

Below I present the findings on observation, tests, interviews and questionnaires in separate sections.

6.4.1 Observation

The immersion Chinese language class used an e-book that corresponds to the textbook, which includes voice reading with color-changed characters, animation, and games for practicing characters, but the class did not have time to do it everyday. The students selected the paragraph and the word list they need to listen to. When a word was being read, the color of the word changed. The students could also click on a picture, which prompts the paragraph that

corresponds with this picture, and the picture becomes an animation showing the paragraph's meaning. The students always chose to play games after listening to the e-book. Although each lesson has its own game, the game does not focus on the target words of its lesson. The teacher also used online videos in Chinese to teach songs and cultural topics. The students were provided a handout to read and write about the songs and cultural topics that they saw on the videos. Some classes also had dictation of Chinese characters. As mentioned in chapter 3, the students have a workbook with fill-in-the blank character exercises and writing homework. As a result, the students wrote characters in class and out of class. In addition, they had opportunities to learn characters through computer assisted materials, including the e-book.

In the heritage weekend class, the students' homework included both handwriting and computer portions – a CD-ROM. In the CD-ROM, students were required to read a non-animated e-book that is otherwise similar to the non-heritage students' e-book. Students could not choose the page they want to read, but they did have game-style exercises, which focus on the target words they were learning. Therefore, while the non-heritage students in the immersion Chinese language class might work on the characters beyond the lesson that they were currently at, heritage students in the weekend class only worked on what they were learning in that week. Their workbook contains a set of true or false reading comprehension questions, character writing and sentence writing (which vary depending on the level of study) and dictation done in class. Thus, the students had written practice and computer assisted materials.

Based on what I was able to observe in the immersion Chinese language class, it was difficult for the students to read the textbook, complete their workbook and writing exercises without Pinyin. However, they could recognize and write at least some characters in the

exercises, which they may have learned previously. In the weekend class, most of the students were able to do dictation and read the text fluently after finishing their homework.

6.4.2 Results of tests

With respect to the test results at the YCT level 3, the 25 question test was relatively easy for most of the students. Half of heritage students made no errors at all, 2 of the heritage students made more than 10 errors, and the rest made only a few errors. The two fourth grade non-heritage students made one and two errors, respectively. The third grade student made 9 errors. Table 14 shows the results of YCT level 3. There was no big gap between heritage students and non-heritage students. Since all participants thought the YCT level 3 test was easy, a second pre-test was given, YCT level 4.

Table 14
Results of YCT level 3

	Heritage students	Fourth grade	Third grade
No errors	5		
1-2 errors	1	2	
3-5 errors	2		
5-10 errors			1
More than 10	2		

Table 15 shows the results of the second pre-test. At the YCT level 4, the test was difficult for all students. Out of a total of 30 multiple choice questions only 2 of the 10 heritage students had more than 10 correct answers. 2 others had 5 correct answers, which is the lowest score among all heritage and non-heritage students. As for the first writing portion, the heritage student who had the highest score wrote 3 sentences for a total of 5 questions. In the second writing portion, the heritage student who had the highest score wrote 4 characters for a total of 5 questions. However, 3 heritage students did not write anything in the writing portions. Of the

two fourth grade non-heritage students, one had 10 correct answers, 1 sentence, and 1 character; the other had 11 correct answers, 1 sentence, and 2 characters, respectively. The third grade non-heritage student had 7 correct answers. The results of the two tests were similar and showed that the levels of the fourth grade non-heritage students were very close to well-performing heritage students. The third grade non-heritage student's results matched the average range from among the results of the heritage students. There was no noteworthy difference between heritage and non-heritage students.

Table 15
Results of first YCT level 4

	Heritage students	Fourth grade	Third grade
30 Multiple choice questions			
10-14 correct answers	2	2	
6-9 correct answers	6		1
5 correct answers	2		
Written I (5 sentences)			
0 sentence	6		1
1 sentence	2	2	
2 sentences	2		
Written II (5 characters)			
0 character	4		1
1 character	1	1	
2 characters	2	1	
3-5 characters	3		

Table 16 shows the results of the post-test, which is also at the YCT level 4. These results are in line with the pre-tests, with no meaningful difference between heritage and non-heritage students. One heritage student had 30 correct answers out of a total of 30 multiple choice questions, wrote 5 sentences for a total of 5 questions, and 4 characters for a total of 5 questions. However, this student took the test back home and her mother marked the few characters in the questions, indicating the mother's assistance. It is therefore possible that she

might not have the result without her mother's help. The results of 2 other heritage students on the three sections are better than non-heritage students', with 28 correct answers, 4.5 sentences, 5 characters and 26 correct answers, 5 sentences, 4 characters respectively. Two heritage students' results were close to the two fourth grade non-heritage students. These students had 27 correct answers, 2 sentences, 4 characters and 22 correct answers, one sentence, 3 characters respectively, while the two non-heritage students had 22 correct answers, 3 sentences, 4 characters and 18 correct answers, 3.5 sentences, 3 characters respectively. One heritage student had 29 correct answers, but no sentences, and only one character. 4 heritage students' results were lower than the third grade non-heritage student, who had 12 correct answers, 2 sentences, and 2 characters.

Table 16
Results of second YCT level 4

	10 heritage students	2 fourth grade	1 third grade
30 Multiple choice questions			
26-30 correct answers	5		
22 correct answers	1	1	
18 correct answers		1	
12 correct answers			1
5-8 correct answers	4		
Written I (5 sentences)			
0 sentence	2		
0-1 sentence	2		
2 sentences	2		1
3-4sentences (include 3)	1	2	
4-5 sentences (include 4)	1		
5 sentences	2		
Written II (5 characters)			
0 character	1		
1 character	3		
2 characters	1		1
3 characters	1	1	
4 characters	3	1	
5 characters	1		

The results of the three non-heritage students' post-test are better than the results of the pre-test. The two fourth grade non-heritage students' correct answers improved from around 10 to around 20, and they could write more sentences and more characters in the test questions. The heritage students' situation was different. Table 17 shows the comparison between heritage students' pre and post-test. Six heritage students' correct answers improved by more than 20. However, four heritage students' results of the post-test are similar to or lower than the results of the pre-test. There are a number of possible reasons for the discrepancy among heritage students. First, the heritage students who requested to take the test back home showed high motivation to do the test, and they might pay more attention and spent more time at home. Second, at the end of the semester in the weekend school, there was an activity involving a review and testing of characters. It was possible that some heritage students' parents urged their students to study the required characters, which was helpful for the post-test questions. Third, some heritage students might not have the motivation or desire to pay attention to the test because they were bored, especially at the end of the semester. They might not have the required motivation to spend time on the post-test at home. These factors might impact the results of the heritage students' post-test.

Table 17
Comparison of heritage students' pre-test and post-test

Heritage students	Pre-test			Post-test		
	Correct answers	sentences	characters	Correct answers	sentences	characters
A	14	3	0	30	5	4
B	12	0	2	26	5	4
C	9	1	2	7	2	0
D	9	2	4	28	4.5	5
E	9	2	0	8	0.9	1
F	8	0	0	27	2	4

G	7	1	1	22	1	3
H	6	0	0	6	0	1
I	5	0	5	29	0	1
J	5	0	0	5	3	2

6.4.3 Results of interviews and questionnaires

In order to analyze the results of the tests, questions about the tests were prepared and given to teachers, parents, and students through informal and formal interviews as well as email. The main purpose was to find out how they felt about the tests and how they view character learning in general. Were the tests easy or difficult? Do they view character learning as a difficult task?

At the YCT level 3, most students, parents, and teachers said it was not difficult, and most students spent more than 10 minutes but less than the 25 on the test. Only one heritage student's mother said he did not schedule enough time to do the test at home. On the other hand, two heritage students stated that the test was not easy. Most students said they read Pinyin, while one non-heritage and one heritage student stated that they did not read Pinyin and it was not helpful. Both heritage and non-heritages students felt the YCT4 was difficult the first time. Most indicated they would not be able to do more even if they had more time. By comparing YCT level 3 and YCT level 4, we can see that heritage and non-heritage students had similar reactions to the two pre-tests, and most of them thought Pinyin was useful in YCT level 3.

All interviewees felt that learning to write Chinese characters was difficult, because it is difficult to memorize how to write the strokes in order. All of the teachers and most parents who were interviewed stated that computer-assisted materials were useful for teaching Chinese. The main reasons are the following. First, computer-assisted materials are interesting and can attract

and maintain children's attention. Second, computer-assisted materials have interactive exercises requiring attentiveness to the subject. Third, children can do homework or exercises alone with these materials. The weekend class teacher said through the dictation and voice homework for reading, it was easy to see that CD-based computer homework is very useful for reading. As for students, six heritage students and one non-heritage student also thought computer-assisted materials were useful, because they liked to use computers to play games. Three non-heritage students said that voice reading was very helpful. One non-heritage student mentioned that he likes the software that teaches how to write characters because it helps learn the stroke order. However, there were also other opinions. Two non-heritage students said they did not want to use computer assisted materials, because it is not that helpful. Four heritage students indicated that they did not like computer assisted materials, even though it was helpful. They did not find the material interesting, and the writing practice it provides is not sufficient. One heritage student's father said that after his child knew the order of the strokes, this kind of software was not that helpful, and that his child needed more practice in handwriting to learn new characters. One non-heritage student's parent also mentioned that computer assisted materials should involve writing. Another reason is that computer assisted materials may add difficulties doing homework or exercises. One heritage student did not use the computer aid at all, except when doing homework because she did not know how to use it by herself. Two non-heritage students said they liked the questions that ask them to put the right word inside of an appropriate sentence, but they did not like the game design that required dragging a Chinese character to another part of the computer screen. One heritage student also said that the movement needed to be extremely precise and was difficult to accomplish.

In sum, the results of the tests show that there is no meaningful difference between heritage and non-heritage immersion students. The results of immersion learners' post-test are better than the results of their pre-tests, while the heritage students' situation was inconsistent—some improved and the others did not, between the tests. The results of interviews and questionnaires indicate that Pinyin was useful in YCT level 3, while learning to write Chinese character is difficult. It was felt that game-style exercises and e-book are good for character recognition and reading, but there is a need for softwares that teach character writing.

6.5 Discussion

The purpose of the study on computer-assisted teaching was to examine the effect of computer-assisted methods on character learning. Chinese characters provide comparatively fewer phonological clues compared with an alphabetic writing system (DeFrancis, 1984; Everson, 1994). In order to analyze the process of Chinese character learning, this study observes non-heritage and heritage elementary school students in an immersion Chinese class, and a weekend class. Pre-tests and a post-test were conducted in the immersion Chinese class and the weekend class. In the above through observation, interviews, questionnaires, and tests, I described the similarities and differences in character teaching between heritage and non-heritage students in the four types of classes. In particular, my focus was on the effectiveness of computer-assisted materials by analyzing the difficulties learners face in connecting phonological and orthographic information. Based on the findings presented above, we can now answer the three research questions:

1) Do the teachers and students in the two programs think computer-assisted methods help children who have relatively high Chinese input learn Chinese characters?

2) How do the methods help them learn Chinese characters?

3) What is the relationship between computer-assisted methods and character learning?

Concerning the first research question, based on the findings of interviews presented above, the teachers and most students in both heritage and immersion programs think computer-assisted materials helped students learn Chinese characters. Although four heritage students did not like computer assisted materials, they did not deny its usefulness. Only two non-heritage immersion students felt that the computer assisted materials were not that helpful, but the two students did find voice reading helpful.

Based on observation and interviews, the immersion Chinese language class and the weekend class used similar computer-assisted materials, voice reading with color-changing characters, and game-style exercises. These materials were used regardless of the amount of input students receive elsewhere. Both teachers in the two programs used the materials to guide their students to learn characters and improve reading. Based on results of tests at the schools collected from teachers' interviews and the tests conducted in this study, all students made improvement in their character learning, although a few heritage students only improved slightly.

However, this study did not find that the relatively high oral input and the ability of speaking help students memorize the form and the meaning of characters. All interviewees stated that learning to write Chinese characters was difficult. Most students who participated in the tests said that they read Pinyin and it was useful at YCT level 3. Students still need to learn how to connect a character's pronunciation to its form and meaning. In addition, the results of pre-tests

and post-tests did not show a significant difference between heritage and non-heritage students, who used similar computer assisted materials. The results of the tests indicate that heritage learners did not have an advantage over non-heritage learners in reading comprehension and writing. The results of interviews and questionnaires also show that heritage learners and non-heritage learners are comparable when learning characters. Heritage learners and non-heritage learners had similar opinions about the difficulty of learning to write characters. Besides written homework, the teacher of heritage students collected voice homework recordings – reading of texts after doing homework which included following the e-book to read the text. Based on the homework and the results of dictation in class, the teacher stated that voice reading with the e-book was helpful, an opinion the non-heritage learners agreed with. This reflects that connecting a character's pronunciation to its form and meaning is equally difficult for heritage and non-heritage learners. This may be related to characteristics of Chinese language - Chinese characters provide relatively few phonological clues compared with an alphabetic writing system (DeFrancis, 1984; Everson, 1994).

As to the extent that computer assisted materials help learners, based on interview findings the learners and their teachers thought the computer assisted materials helped them with character pronunciation when comparing using computer assisted materials and not using them. In interviews and questionnaires non-heritage learners as well as heritage learners expressed that learning characters was difficult. Both the immersion class at Central Hill and the weekend class at Lincoln school used the e-book and game-style exercises to help the students read the texts. The weekend class teacher found e-book reading to be beneficial, as it improved textbook reading in class and dictation results. The three non-heritage immersion learners also found voice

reading to be helpful. From interviews and observation I found that the e-book helped students directly connect the pronunciation with the character form. Students who had a relatively high Chinese input may have had background information of the characters already. Reading the e-book strengthened the mapping between form and sound. As for new characters, animation in the e-book helped non-heritage students recognize the meanings of the new characters. This is similar to what Xu et al. (2013) and Lu et al. (2013) reported - video context or animation was useful in reinforcing the connection of a character's pronunciation to its orthographic information and meaning.

In addition, the computer assisted materials were attractive to learners because of the game-style exercises, which encouraged the students to be actively involved. In the immersion Chinese language class, the students were very interested in doing game-style exercises. They randomly chose a game, which might consist of the characters that they were learning, had already learned, or characters they did not yet know. This was different from the weekend class's homework, which focused on the target words in the lesson that they were learning. However, the pre-tests and post-test did not show a significant difference between the two groups of learners. Both groups had additional writing practice to improve their character retention, but, in interviews it was indicated that students want to play games on computer, and the game-style exercises offer more opportunities to process Chinese characters.

The third question concerns the relationship between computer-assisted methods and character learning. Based on my observation, computer assisted materials made recognizing characters relatively easy, interesting, and convenient, as it created a student-centered learning environment (Ariew, 1991). However, the materials did not solve the problems of character

writing. The learners still used the traditional method, practicing writing by hand, to learn characters. The findings of interviews and questionnaires also show that current computer assisted materials need to include practice of writing to help students learn characters. Current computer assisted materials alone cannot improve students' character learning ability. They can help students retain the pronunciation and connect the pronunciation to its form and meaning, but it does not contribute to students' written output, a critical part of learning Chinese. Character learning can benefit from both computer assisted and traditional methods. This finding is consistent with the findings of Knell and West (2015) and the studies of Guan, et al. (2011) and Xu et al. (2013).

The results of pre-tests and post-test show that some students made measurable progress during one semester while others did not. This suggests that other factors also affect the learning. Learning characters requires self-motivation and time management skills. All three non-heritage students made progress, and this may be because the immersion Chinese class was mandatory, and by finishing classroom exercises and homework they improved their language skills. However, the weekend class was an optional class for heritage students, and they were not required to devote time to it. Students who had the motivation might spend more time practicing, while students who had less motivation would spend less time on it. Therefore, although all of them did the same homework, the results were different. This indicates that learning characters requires practice. While computer assisted materials are useful tools, they alone cannot lead to success; repeated practice is essential. Using computer assisted materials can be an efficient method, which may help students achieve a higher level over time, but without time spent on practice, the methods may not produce good results.

In addition, a computer assisted method itself may also face some challenges. First, according to the interviews and test results, not all learners had a positive view of the computer assisted materials. Some learners indicated that they did not like the materials for various reasons. In addition, it is possible that learners may only focus on the game aspect of the materials. This may lead to an unintended learning outcome. Second, current materials do not fully satisfy learner needs. Parents and students expressed their desire for better materials, which are interactive and come with more functions. There is clearly a need for continual improvement on computer assisted materials.

Due to inherent restrictions to the study, there was not enough time to conduct in-class tests. Therefore the conclusions that are drawn here are based on qualitative analyses of observation, interviews, questionnaires, and pre- and post-tests. In the future, it will be good to examine the same issues from a quantitative perspective.

CHAPTER 7: CONCLUSION AND IMPLICATIONS

The purpose of this dissertation is to investigate Chinese immersion programs, how Chinese is taught and how students learn Chinese in such programs. Despite the rapid growth of these programs, there have not been many studies on them. In the dissertation, I conducted three studies to examine three aspects of immersion programs. The first study investigated the differences between Chinese immersion programs and Chinese non-immersion programs. I compared four classes, immersion Chinese language class, immersion Chinese-math class, non-immersion daily Chinese class, and weekend Chinese class. I used observation, interviews, and questionnaires to make the comparison. The second study examined the effects of immersion programs by looking at how immersion students learn the *ba*-construction and time phrases. The study was exclusively carried out by class observation. The third study discussed computer-assisted methods for character learning. I used observation, interviews, questionnaires and tests to understand the role of computer-assisted methods in character learning.

In the first study, we found that the Chinese immersion program is different from other Chinese programs in teaching methods and student output. The two immersion programs, the immersion Chinese language class at the Central Hill school and the immersion Chinese-math class at the South Mountain school, used the functional approach (the communicative approach) with explicating in each class time, while the weekend class at Lincoln school and the non-immersion class at the West Desert school used the analytical approach with practicing in context in most classes. The immersion students and weekend students produced spontaneous speech in each class, while non-immersion language class students did not. In the second study,

we found that immersion students produced *ba* sentences at a relative low rate, while they produced sentences with time phrases very often. However, in terms of accuracy, immersion students almost flawlessly used *ba* sentences, but they made a large number of errors on time phrases. This is quite different from adults' performance on these two grammatical constructions. *Ba* sentences were difficult for adults, who hardly produce any *ba* sentences freely, while time phrases were easy for them, with few errors. In the third study, we found that there was no difference between immersion students and heritage students in character learning. It is also found that while computer assisted materials helped with character recognition, it did not help with character writing.

My study offers at least three implications for Chinese language pedagogy. First, finding an appropriate balance to combine an experiential approach with an analytical approach can benefit language teaching. Immersion programs are perhaps the best examples of such a balance. The key point of the immersion approach is to provide enough comprehensible input and opportunities to produce output in authentic contexts with an appropriate amount of explanation. Other kinds of classes may also use authentic contexts and find an optimal ratio of explicit learning to implicit learning. This is Christensen & Warnick's (2006) proposal concerning FACT and ACT. The ratio of FACT and ACT can be applied in overall curriculum design and individual lesson plans. At the curriculum level, the ratio of FACT and ACT represents planning how many class hours are spent on each one per week. However, college, high school, middle school, and/or elementary schools may have different amounts of allotted class time per week, and each class is different. Additionally, instructors may not have the authority to alter curriculum. However, the instructors might have the authority to design their own lesson plan for

each class session, and this is an application of an appropriate ratio of FACT to ACT at the class level.

Second, using targeted grammar patterns in authentic contexts has great value. Some Chinese grammar, such as the *ba*-construction, is difficult to explain because there is no corresponding structure in English. Even for some Chinese grammar that can be explained through English translation, using it in authentic contexts provides learners opportunities to understand it deeper, including not only the syntactic form but also appropriate usage. With real understanding of the target grammar through comprehensible input, learners develop the ability to properly produce output.

Third, appropriate use of computer-assisted methods requires specific application tailored to the current lesson. Current computer-assisted methods cannot solve all learning problems. In the process of learning Chinese characters, computer assisted materials made recognizing characters relatively easy, interesting, and convenient, but did not solve the problems associated with the difficulties in learning to write characters. Computer assisted materials can aid students in character recognition and support reading comprehension. However, when a teacher wants to improve the students' ability to write characters, other methods should be involved.

As video and audio recording was not allowed during class observation, the data of this research is not complete, and some students' and teachers' speaking could not be recorded. Thus, the analysis is about trends instead of specifics. In addition, the number of participants is limited, especially for the pre-tests and post-test. As such, statistical tests cannot be conducted. In future studies, with more accurate data, further analysis in more detail may provide more useful information and benefit the teaching process.

APPENDIX A - QUESTIONNAIRE FOR NON-IMMERSION CLASS TEACHERS

For the Chinese teacher

1. What is your students' Chinese background before taking your class this semester?
我听课这班学生在上您的中文课之前的中文水平是怎样的？

2. What do you expect them to learn in the class?
您希望他们在您的课上学到什么？

3. Can you introduce the Chinese curriculum design that you are using? Including the strategies used in the classroom for teaching vocabulary, character writing, sentence building, etc.; teachers' role; students' role; parents' role; learning resources, what are students expected to do outside the class.
现在的课程设计是怎样的？包括怎么安排教授生词、语法、写字、造句；课堂上学生的责任是什么；在家是否需要家长辅导他们中文；教学资源，包括什么书以及是否用电脑软件；学生课下是否还需要做功课或者复习。

4. In a perspective of pedagogy, what do you think the strength and weakness of this kind of curriculum design in reality?
从宏观教学法看，您觉得目前的教学大纲在现实中有什么优缺点？

5. Based on the characteristics of children's learning, what aspects of the curriculum design are helpful and useful to the students? Why? Do you have any suggestions for the curriculum design?
关于汉字的学习，目前的教学大纲的哪些方面有利于学生？为什么？您对目前的教学大纲有什么建议吗？

5.1 How do you approach teaching Chinese characters as compared with other language skills, such as listening, speaking, reading, sentence building, etc.?
对比教授听力、说话、阅读、造句等，您怎么教授汉字呢？

5.2 What challenges do students encounter when learning characters? What challenges do you encounter teaching characters？
在学习汉字时，学生有什么样的挑战或者困难呢？在教授汉字时，您有什么挑战或困难吗？

5.3 What do you think about the computer-assisted teaching materials? Are they helpful or useful? What kind of computer-assisted teaching materials do you need or expect? Why?
您对计算机辅助教学资源怎么看？您觉得这样的资源有帮助吗？什么样的计算机辅助教学资源是您想用的？为什么？

6. What do your student learn in the class? Does it achieve your goal or match your expectation? Can you explain more in details?

您认为您的学生在课上学到了什么？达到了您的预期吗？能具体解释一下吗？比如说，周四的考试情况是否能说明学生的程度？

7. What do you think is the ideal Chinese class style for children? You may talk about in different situations.
您认为理想的教孩子中文的模式是怎么的？您可以根据您想到的不同的具体情况来解释您的想法。

8. Based on your teaching experience in this program, what is characteristics, such as advantage or disadvantage, of children in the aspect of Chinese learning? What can adults do better than children if they use the same curriculum design style? What can be worse for adults?
基于您在这个课程的教学经验，您觉得孩子学习中文的特点是什么？如果用同样的教学大纲，哪些地方孩子会强于成人，哪些地方会弱于成人？

For the English teacher

1. How many students in this class?

2. How many students are 6 years old or 1st grade; how many students are 7 or 2nd grade; how many students are 8 or 3rd grade; how many students are 9 or 4th grade; how many students are 10 or 5th grade; how many students are 11 or 6th grade?

3. How long have they taken Chinese class? Is this their second semester of learning Chinese or second year?

4. They do not have Chinese homework, is it right? Do they have other homework?

5. I saw you helped teacher Feng in Chinese class when she could not hold them, and you helped the students to practice something according to teacher Feng's lesson in class. Do you also help the students for their Chinese after the Chinese class, such as preparing for test?

APPENDIX B - QUESTIONAIRE FOR IMERSION CHINESE CLASS TEACHERS

1. How many students in your class? How old are they? What is your students' Chinese background before taking your class this semester?

2. What do you expect them to learn in the class?

3. Can you introduce the Chinese curriculum design that you are using? Including the strategies used in the classroom for teaching vocabulary, math skill, etc; teachers' role; students' role; parents' role; learning resources, what are students expected to do outside the class.

4. In a perspective of pedagogy, what do you think the strength and weakness of this kind of curriculum design in reality?

5. Based on the characteristics of children's learning, what aspects of the curriculum design are helpful and useful to the students? Why? Do you have any suggestions for the curriculum design?

5.1 Do you teach Chinese characters? If yes, what challenges do students encounter when learning characters? What challenges do you encounter when teaching characters？ How do you approach teaching Chinese characters as compared with other language skills, such as listening, speaking, reading, sentence building, etc.?

5.2 Do you teach Pinyin in your class? Have students already known Pinyin because they have learned it in Kindergarten?

5.3 What do you think about the computer-assisted teaching materials? What computer-assisted teaching materials are you using? Are they helpful or useful? Can you explain it in details, such as if it is helpful to listening, writing, reading or not? Why? What kind of computer-assisted teaching materials do you need or expect? Why?

6. What do your students learn in the class? Does it achieve your goal or match your expectation? Can you explain more in details?

7. What do you think is the ideal Chinese class style for children? You may talk about in different situations.

8. Based on your teaching experience in this program, what is characteristic, such as advantage or disadvantage, of children in the aspect of Chinese learning? What can adults do better than children if they use the same curriculum design style? What can be worse for adults?

APPENDIX C - QUESTIONNAIRE FOR IMMERSION CHINESE-MATH CLASS TEACHERS

1. How many students in your class? How old are they? What is your students' Chinese background before taking your class this semester?

2. What do you expect them to learn in the class?

3. Can you introduce the Chinese curriculum design that you are using? Including the strategies used in the classroom for teaching vocabulary, math skill, etc; teachers' role; students' role; parents' role; learning resources, what are students expected to do outside the class.

4. In a perspective of pedagogy, what do you think the strength and weakness of this kind of curriculum design in reality?

5. Based on the characteristics of children's learning, what aspects of the curriculum design are helpful and useful to the students? Why? Do you have any suggestions for the curriculum design?

5.1 Do you teach Chinese characters? If yes, what challenges do students encounter when learning characters? What challenges do you encounter when teaching characters？ How do you approach teaching Chinese characters as compared with other language skills, such as listening, speaking, reading, sentence building, etc.?

5.2 Do you continue to teach Pinyin in your class? Have students already known Pinyin because they have learned it in Kindergarten? (I did not ask this question to Kindergarten.)

5.3 What do you think about the computer-assisted teaching materials? Are they helpful or useful? What kind of computer-assisted teaching materials do you need or expect? Why?

6. What do your student learn in the class? Does it achieve your goal or match your expectation? Can you explain more in details?

7. What do you think is the ideal Chinese class style for children? You may talk about in different situations.

8. Based on your teaching experience in this program, what is characteristics, such as advantage or disadvantage, of children in the aspect of Chinese learning? What can adults do better than children if they use the same curriculum design style? What can be worse for adults?

APPENDIX D - QUESTIONNAIRE FOR WEEKEND CLASS TEACHERS

1. What kind of background on Chinese do your students tend to have?

2. How do you approach teaching Chinese characters as compared with other language skills, such as listening, speaking, reading, sentence building, etc.?

3. What challenges do the heritage students encounter when learning characters? What challenges do you encounter teaching characters?

4. Do you think the CD homework helps your students in learning characters? Can you explain in details about how you find the CD homework is helpful or is not helpful? Why?

5. In general, what do you think about computer-assisted materials? Are they helpful or useful? Can you explain in details about how computer-assisted materials help or do not help teaching or learning Chinese based on your teaching experience? For example, is it helpful to listening, writing, or reading comprehension? Is it very useful to heritage students, non-heritage students, or both? Why?

6. What kind of computer-assisted materials do you need or expect? Why?

APPENDIX E - QUESTIONNAIRE FOR IMMERSION CHINESE CLASS PARENTS AND STUDENTS

Questionnaire for parents

Your child's name:
(I will use it to organize my data, and I will not show it in my research.)

1. How old is your child?
Can you talk about your child's Chinese background? For example, how long has he/she learned Chinese? Did he/she go to the immersion pre-school in this school? Does your child speak Chinese at home?

2. Why do you want your child to learn Chinese?
After school, does your child has any other Chinese class, such as Chinese tutor or weekend school? Do you teach your child Chinese at home by yourself or any software?

3. Do you know Chinese? Do you know Chinese characters? Do you have any thoughts about Chinese characters, such as is it important for learning Chinese? What are the difficulties of learning characters?

4. Does your child study Chinese at home? If yes, how did your child study Chinese at home? Does he/she use some computer-assisted materials to learn Chinese at home?

5. What do you think about computer-assisted materials? Are they helpful or useful? Do you think computer-assisted materials help your child in learning characters? Why?

6. What kind of computer-assisted materials do you want or need or expect? Why?

Can you also help me ask your child the following questions? Thank you.
1. What is your Chinese name? (You can write Pinyin if you do not know how to write the characters)

2. Why do you learn Chinese? Do you think your Chinese is good? Why?

3. What do you like to learn, character, listening, speaking, reading, writing, singing, or something else? Why?

4. Do you like to learn Chinese characters? Why? Do you think learning Chinese characters is important for learning Chinese? Why? What do you think are the difficulties of learning characters?

5. Do you like to speak Chinese at home? Why?

6. Do you like to study Chinese at home? Why?

7. Do you like to learn Chinese in computer? What do you like to do for Chinese in computer? Do you think computer-assisted materials help you learn Chinese characters?

8. What kind of computer-assisted materials do you need or expect? Why?
9. (For 3 & 4 grades) Did you remember if you read Pinyin when you do the research test (the first time)? Do you think the Pinyin is very helpful for you to answer the questions? Do you think the first test is easy or difficult?

APPENDIX F - QUESTIONNAIRE FOR WEEKEND CLASS PARENTS AND STUDENTS

Interview questions for parents

Your child's name:
(I will use it to organize my data, and I will not show it in my research.)

1. Do you remember how long it takes for your child to do the test at home (the first time test)?

2. How old is your child? Can you talk about your child's Chinese background? Does your child speak Chinese at home?

3. Why do you want your child to learn Chinese? Besides the weekend school, does your child also have other Chinese class? Do you teach your child Chinese at home?

4. Do you think learning Chinese characters is important for learning Chinese? Why?

5. What do you think are the difficulties of learning characters?

6. How did your child study Chinese at home? Do they use some computer-assisted materials besides the homework of the weekend school?

7. What do you think about computer-assisted materials? Are they helpful or useful? Do you think computer-assisted materials help your child in learning characters? Why?

8. What kind of computer-assisted materials do you want or need or expect? Why?

Can you also help me ask your child the following questions? Thank you.

1. Do you think the test that you did at home is easy? Did you read Pinyin to do the test? Do you think the Pinyin is very helpful for you to answer the questions?

2. Do you think your Chinese is good? Why? Why are you learning Chinese? Do you prefer to speak Chinese at home?

3. Do you want to learn Chinese characters, including recognizing and writing? Why? Do you think learning Chinese characters is important for learning Chinese? Why?

4. What do you think are the difficulties of learning characters?

5. What do you think about computer-assisted materials? Are they helpful or useful? Do you like computer-assisted materials? Do you think the computer-assisted materials help you in learning characters? Why?

6. What kind of computer-assisted materials do you need or expect? Why?

APPENDIX G - OBSERVATION CHECKLIST

Categories	Observation
Class type of content	
1 Teaching approach	
A. Mainly analytical approach	
B. Analytical approach with practicing in context	
C. Functional approach with explicating	
D. Mainly functional approach	
2. Ratio of explicating	
A. Less than 25%	
B. Around 50%	
C. Around or above 75%	
3. Context	
A. Authentic context	
B. Practice materials	
4. Comprehensible input	
A. Adjusting input with learners' negotiation	
B. Adjusting input with learners' non-language reaction	
C. Giving learners contextual feedback	
D. Giving learners grammatical feedback	
E. No feedback	
5. Output	
A. Learners have opportunities to produce output	
B. Learners have opportunities to produce contextual output	
C. Learners have less opportunities to produce output	
D. Have peers' contextual feedback	
E. Have peers' grammatical feedback	
F. No peers' feedback	
G. Have reaction to grammatical feedback	
H. Have reaction to contextual feedback	
I. Learners don't have opportunities to react to feedback	
J. Learners have opportunities to produce oral output	
K. Learners have opportunities to produce written output	
L. Learners have self-correction	
6. Language	
A. Mostly use Chinese to teach content	

B. Training learners to use Chinese in appropriate context	
C. Use Chinese to teach Chinese grammar	
D. Use English to teach Chinese grammar	
7. Students' speech	
A. Incomplete utterance (one word or one clause)	
B. Sustained speech (at least two main clauses or longer than one sentence)	
C. Spontaneously initiated talk	
8. Restriction of linguistic form	
A. Restricted: expect a particular linguistic form	
B. Unrestricted: no expectation of any particular linguistic form	

APPENDIX H - *BA*-CONSTRUCTION - STUDENTS

(The page numbers are for the observation notes.)

May use *ba*-construction

1	罗老师没有人要放在地上 (L3) (在回复老师的话“这是谁把它放在地上”)	p.53 (March 4)
2	我已经圈起 (L4) (老师在让把生词圈起来)	p.83 (March 15)
3	你可以擦我的名字，我说了很多中文 (L3)	p.108 ((March 22)
4	你可以擦我的名字 (L2)	
5	你可以擦我们的名字 (L1) (这几句是这几个人先后同一时间说的，老师把说英文的人的名字记到白板上，她们说自己说了中文了，想让老师把自己的名字擦掉)	
6	还有你说你要擦擦我的名字，还有你没有 (L4 boy)	p.110 (March 22)
7	我可以放它进是吗	p.116 (March 22)
8	还有放它进去 (L4)	
9	放它在这里 (L4 boy) (这三句是在一个场景说的，在说谁放仓鼠进笼子，后两句是一个人连着说的)	
10	~ 放它在这里 (L4 boy)	p.119 (March 22)
11	你没有擦我的名字, 那个不公平	p.147 (April 12)

APPENDIX I – *BA*-CONSTRUCTION – TEACHER

(The page numbers are for the observation notes.)

1	把歌词放在一起	p.1 (Feb. 11)
2	把三字经放在一起	
3	把歌词房在一起好吗	
4	你把它整理好，好吗	
5	~ 把你的拿出来	
6	把三字经拿出来	
7	你要把它打孔	
8	把资料夹拿过去	
9	~ 你有把你的三字经找出来吗	
10	把歌词放在一起	
11	把歌词放在一起	p.2
12	把歌词放在一起	
13	把三字经拿出来	
14	把歌词放在一起 （重复）	
15	把歌词都找出来	
16	把歌词放在这里	
17	把球放回	p.3
18	~ 你要把三字经拿出来	
19	你把我的头打了	p.4
20	把它放在…	p.5
21	把它放回去	
22	把它放回去	
23	把三字经收起来	
24	把三字经打孔收起来	
25	~ 这个星期该你把仓鼠带回家吗	
26	~ 今天你要把仓鼠拿回家	p.10 (Feb. 12)
27	把资料夹拿出来就好了	
28	是谁把纸丢在这里的	p.14
29	等一下讲完故事就把它放回去	
30	他把礼物放在那里，在小拖车上	p.15
31	你想把这本书撕了是吧	
32	把纸对折	p.16
33	把它打开	
34	你们不要把我的都用完了	p.17
35	把它面朝下放好	p.20 (Feb. 18)

36	~ 把它放在资料夹里	p.21
37	把垃圾桶拿过来	p.22
38	把它弄进去	
39	你要把那个擦干	p.23
40	我已经把它擦好了	
41	把它擦干	
42	把它放回去	
43	~ 把它放进去	
44	把它放回去	
45	把剪刀拿出来	p. 25
46	把它放好	
47	~ 把它放好	
48	~ 把它擦掉	p.27 (Feb. 19)
49	这是谁把它放在这里 （不清楚）	
50	把书收起来	
51	把它关上就好了	
52	~ 把书关上 （不清楚）	
53	把书收起来	
54	把它扔掉 （不清楚）	
55	你们每个人把书选好了	
56	可以把书放回去了	p.28
57	把书放好	
58	~ 你把…	p.29
59	~ 帮我把门关一下 （对我说）	
60	把它圈起来	
61	你把石头掉在水里	
62	把垃圾掉在…	
63	把彩色笔收好	
64	这是谁把我的书丢在那里	
65	谁把自己的位子装饰得这么漂亮	p.30
66	好，把它放回去，时间到了	
67	这是什么你把它放在这儿	
68	把它放到垃圾箱里	
69	~ 把这个拿出来我改	
70	拿铅笔把这个做了	
71	为什么你把老师的这个东西都拿来玩了	p.31
72	把你们昨天画的画拿出来（重复）	p.37 (Feb. 24)
73	~ 我希望你把那个照相的画出来	

74	我们要用手工纸把它贴起来	p.38
75	我们把这个涂成蓝色好吗	
76	把这个粘起来	
77	你待会儿再把它粘起来	
78	你用胶水把这个粘上去	
79	我想把它带回我家里去	
80	可是你把它给撕了	
81	~ 你没有把你这幅画画好	
82	~ 把它收拾到你的柜子里去	p.39
83	把你的草稿和你的画一起收起来	
84	~ 把这个收好	
85	你真的要把笼子带回去吗	
86	你把它放好	p.42 (March 3)
87	把它放好	p.43
88	把它放在那里要说中文，放在那里，对了	
89	把你的画选一个颜色	p.45
90	把 你（的）画贴起来	
91	把它改过来好吗	
92	去把你的云找出来	p.46
93	把白板拿过去问一下贾老师	
94	把它写上	
95	~ 把~收起来	
96	把它擦干净	p.47
97	把白板擦干净	
98	~把白板放好	
99	~ 把 ipad 放回去（重复）	
100	~ 把 ipad 放好（重复）	p.48 (March 4)
101	先把笔给我（重复）	p.50
102	~ 把笔给我	
103	把笔给我（重复）	
104	把白板给我	
105	把白板擦干净	
106	~ 把你的水壶放到那边去	
107	把你的书拿过来	p.51
108	把它擦掉	p.53
109	你可以把它做得更好	
110	这是谁把它放在地上	
111	你把你的名字写上	p.54

112	把这个拿起来（不清楚）	
113	~ 把彩色笔捡起来	
114	~ 你今天要把仓鼠带回家哦	p.55
115	~ 把彩色笔收起来	
116	~ 把纸扔掉（重复）	
117	~ 把它拿起来（重复）	
118	我们要把手都拍在 ~ 手上	
119	我们把手都拍在你手上	
120	把手牵在一起	
121	~ 把你的卡拿上	
122	把它关掉	p.56 (March 9)
123	~ 把它放到你的包包里去	
124	~ 把这个放到你的书包离去	
125	好，可以了，把仓鼠放回去	p.60
126	好，把你们的活动本拿出来	
127	把剪刀放好，很危险	p.62
128	把它圈起来	p.73 (March 15)
129	把它放在资料夹里面	
130	你不要把书放得那么难看好吗	
131	昨天的作文，把它拿过来	p.74
132	昨天的生词呢，把生词拿出来	
133	~ 你把它抄下来	p.75
134	你把你的书画成这样	
135	（给）我把它都擦掉	
136	你圈的词把它写在这里	
137	学校，把它圈出来	p.77
138	~ 把字写好	
139	把门关上	
140	~ 把它拿上	
141	好，把跳字改过来，跳字改过来	
142	你看老师，来，把手放下来，你不能这样写字	p.78
143	把它擦干净	
144	去把它打孔	
145	~ 把你的习作…	p.79
146	~ 把你的书包放在那里	p.80
147	你没有写名字，把名字写上	
148	~ 可以玩，把仓鼠拿出来	p.82
149	你把仓鼠的食物放在你家了	

150	你把它的那包拿到哪里去了	
151	你要把它写在这里	
152	把练字圈出来	p.83
153	把悄悄圈起来	
154	把合适圈起来	
155	把书收起来	
156	~ 把它放好	
157	把你的 folder 倒下来	p.85 (March 16)
158	把你的资料夹倒下来	
159	把书放好	p.86
160	你小心把人砸到	
161	把冰圈起来	p.88
162	把主人圈起来	
163	~ 把你的作文放起来	p.89
164	~ 过来，我把袋子给你	
165	好，把活动本放好	
166	把你的袋子给我	p.90
167	都把我捏完了	p.91 (March 17)
168	来，把手伸出来（重复）	p.92
169	~ 你再说话我就把你送到校长办公室去	
170	把椅子放回去	
171	你把它拿到你的位子上去擦	p.93
172	去把椅子放好	
173	好，把它打孔（重复）	p.94
174	~ 我看你打孔，你要把它打正面	
175	~ 把它打扫一下	
176	把仓鼠放进去（重复）	
177	好，把它关上	
178	~ 把声音关掉	p.95
179	把你的袋子给我	p.96
180	把 ipad 放起来	
181	~ 把你的书收起来	
182	~ 把改的放到资料夹里	p.99 (March 21)
183	把功课写名字	
184	你就把你的背对着我吧	
185	每个人说一个句子才能把字卡拿下	p.100
186	把这个放到…里	p.101
187	~ 把课本拿过来	

188	把如果、就圈起来	p.102
189	把载字圈起来	p.103
190	二年级把…收起来	
191	把你的画拿出来	p.107 (March 22)
192	谁在做,把它放回去	p.110
193	你把它做完了，	
194	我就把名字擦掉 (这是和 193 连着的一句话)	
195	好，把它打孔	p.111
196	你要把你爸妈的头打爆	
197	先把三字经放回去	p.115 (March 24)
198	把字写好	p.116
199	把红笔拿给贾老师	
200	去把乐高拆开	p.117
201	把乐高放在那个盒子里	
202	把你的练习册放好	p.118
203	把它放在资料夹里面	
204	把它放好	p.119
205	如果把瓶子推倒就能喝到水的就 (在生词小考)	p.122 (March 25)
206	把圈词拿出来	p.123
207	~ 把轮子放进去	p.124
208	你们把我的骰子都弄脏了	p.125
209	把说明书放起来	
210	我们把谈天圈起来	p.127
211	下课之后把你点心拿到教室来吃	
212	好了，把它放起来	
213	拿铅笔把它改正过来	p.128 (April 4)
214	~ 把这个收起来	p.129
215	~ 把它拿出来	p.130
216	把它放到资料夹里面，打孔	p.132
217	把它这边打孔	p.133
218	好，把它放起来	
219	把它放到资料夹里面	
220	~ 把铅笔收拾了	
221	把它放好，我们要走了	
222	把它夹在文件夹里面 (重复)	p.134
223	把它放起来吧	p.138 (April 6)
224	谁把仓鼠的轮子拿出来的	p.140
225	把它放到资料夹里面	

226	把你的书找到	p.141
227	你要把它收起来才能玩	p.142
228	把它收到资料夹里面	
229	把它捡起来	
230	好，把仓鼠放进来了	p.145 (April 12)
231	把每日一字的本子拿出来	
232	把每…收起来	p.146
233	把它放到那边	
234	先自己做，把课本拿出来	p.147
235	把神奇圈起来	
236	好了，把它放在资料夹里	p.148
237	把它擦掉	p.149
238	把它打孔	
239	好，把它收起来	p.150
240	把你们的柜子都收拾好了没有	
241	~ 把胶水收起来	
242	~ 把你（的）剪刀收起来	
243	它把他们的屁股烧了	
244	说中文他把它杀了	
245	把它变成英雄	
246	你再唱歌，我就吧你送到校长办公室去	p.160 (April 15)
247	好，把你们的名字写上	p.161
248	然后你把盘子递给爸爸	p.163
249	好，重来一遍，把梨放过去	
250	我就要把你的留下来	p.164
251	把它写好	
252	把这个拼音也写上去	p.165
253	把你们的活动本拿出来	
254	~ 把书带回家	p.166
255	~ 把白板笔给我	p.169 (April. 21)
256	~ 把书收起来	
257	三年级第七个字换，把球赛换成电视剧的换 (重复)	
258	把东西收起来	p.172
259	~ 把 ipad 放好	
260	把它勾线	p.173
261	把…涂…	
262	把它涂上	
263	~ 把东西放好	p.174

264	好，把东西收拾好了	
265	把梨放回来	p.175 (April 27)
266	帮老师把梨放篮子里	
267	~ 你要把这个改一下	p.179 (April 29)
268	好，大家请把（课本收起来）	p.180
269	把乐高收拾好	
270	好，把它放回去，洗手	p.181 (May 3)
271	把水瓶放回去	
272	把你们的资料夹收起来	p.184
273	~ 把我的胶带收拾起来	p.185
274	你们可以把你们的资料夹带回家复习	p.186
275	~ 把字写好	p.190 (May 4)
276	~ 把我的笔还原	p.192
277	把仓鼠放回去	p.194 (May 11)
278	先把字写好	p.195
279	把仓鼠放回去	p.198 (May 12)
280	~ 把那个目标靶子给我擦掉	
281	把它拆开	p.199
282	你要把它写在上面	
283	把耳机拿好	p.201
284	把你的 planner 拿好	
285	把耳机还给我	
286	把我的卡放起来	p.202 (May 13)
287	~ 把那本书放好	p.203

April 5 11:00-11:30 observation, no *ba*

APPENDIX J – TIME PHRASE – STUDENTS

(The page numbers are for the observation notes.)

1	我可以做 after… (应该是想说在什么之后上来领读，可能是某个同学之后，或者是某个同学做完之后)	p.3 (Feb.11)
2	我可以做电子书今天	p.4
3	今天这是我的爸爸	p.12 (Feb.12)
4	我长大以后我要做一个科学家 (L2) (这个句子是他们上课学的，这是下课时老师问今天学到了什么时说的)	p.25 (Feb.18)
5	今天我们要 clean cage (L3)	p.34 (Feb.24)
6	没有做 yesterday, 还有 before the day (L4)	
7	有一天孔融的父亲买了好多梨	p.41 (March 3)
8	有一天孔融的爸爸要买梨 (这两句都是在排练孔融让梨的故事)	
9	我长大以后要做一个冰淇淋(制造商) (L1 girl)	p.46
10	我长大以后要做古人类学家 (L2 boy 2)	p.47
11	我们要做 now (重复) (L4 boy)	p.48 (March 4)
12	我今天不太高兴	
13	因为我明天有一个… (这句和上句是连着的)	
14	今天我很开心	
15	今天我要教的… (日常问答，说天气)	p.56 (March 9)
16	…和明天和明天和后天我们没有学校 (日常问答，说天气)	p.57
17	下午同学们在操场上玩游戏 (这是学的内容，老师先说，他们跟着说)	p.76 (March 15)
18	下午同学们在操场上玩游戏 (这是学的内容，又一遍)	
19	我今天很高兴 (L1 girl)	p.77
20	因为星期五我们要，怎么说 field trip (L1 girl) (这两句是连着的，前面提到了喜欢什么，谁很开心，然后这个女孩自己说了这句话)	
21	今天我学了… (下课，老师在门口让每个人说今天学了什么)	p.84
22	昨天我没… (L1 girl)	p.85 (March 16)

23	昨天我没有…	
24	昨天回家后我没有打扫房间 (L1 girl)	
25	昨天回家后我没有打扫了房间 (L2 girl)	
26	昨天回家后我们没有打扫房间 (L4 girl)	
27	昨天回家后两个的我们…（L3）	
28	昨天回家 ~ 和我都做功课 （L4 boy）	p.86
29	今天我把老师教的句子练习了好几次 (做练习填空，把，老师问，一个学生自己说)	p.96
30	周末你做了什么 (L1 girl) (日常问答要求的问题)	p.97 (March 21)
31	周末我做我的功课	p.98
32	周末我有高兴 (L2 girl)	
33	明天我的奶奶 will come back (L2 girl)	
34	周末我打了打扫了我的房间	
35	在周末我做功课 (L2 boy)	
36	昨天我看到他的书包 (L4 girl)	p.106 (March 22)
37	我不太喜欢，因为你不可以 sleep 在周末 (L4 girl)	p.109
38	可是今天我会惩罚我的爸爸妈妈 (L4 girl)	p.110
39	他们说在今天他们跟我说 (L4 girl)	p.111
40	罗老师，我可以现在做我的习作吗 (L4 girl)	p.115 (March 24)
41	如果我决定不要现在做，… (L4 girl)	
42	我和 ~ 今天会做习作吗 (L4 girl)	
43	我可以现在做这个习作吗 (L4 girl)	
44	我们可以现在玩乐高吗 (L4 girl)	p.117
45	我们可以现在玩乐高吗 (L4 boy)	
46	他春假要做功课还要玩游戏 (L1 girl) (老师让他们想春假你要做什么，写在白板上，中文加拼音，让他们告诉同伴，记住同伴的答案)	p.120 (March 25)
47	我有 study 天天 (L4 girl) (老师要他们写词，在这个过程中说的)	p.121
48	可是四年级昨天没有玩了很多 (L4 girl)	p.122
49	我们昨天做了很多，还有我们没有玩了 (L4 girl)	
50	我们今天要洗笼子吗，因为很脏 (L4 girl)	p.124
51	张老师教过我们谈天在二年级 (L4 boy)	p.127
52	昨天我读了这个四次 (L3)	
53	我现在知道为什么…我从来没去过马来人的家 (L4 girl)	

	(后半句，算做是 possible time phrase 里面)	
54	春假我做这个 (L3) (你春假做了什么，白板上中文和春的拼音)	p.128 (April 4)
55	我做那个和我也做这个…星期五和我不可以去 Chines club (L3 girl)	
56	我春假，我会说两个东西…(L4 girl)	
57	我以前是在学校的 (L4 girl)	
58	现在他住在 DC (L4 girl)	
59	来我的家在星期二 (L4 boy)	
60	他要说中文在 10 分钟 (L1 girl)	
61	我已经写了 上上一周 (L4 girl)	p.129
62	他要吃那个东西在早餐和在午餐 (L4 boy)	
63	我找了，我以前找不到了,可是我觉得有一个人拿了放到这里 (L4 girl)	p.131
64	~，以前我做了，还有~（L4 boy）	p.132
65	今天我真乐 (L1 boy)	p.133
66	~, 我们可以 use 这个 for now (L3 girl)	
67	~, 我们可以 use 这个 for now 吗 (L3 girl)	
68	现在 8 点，我要回家 (L4 girl) (在做日常问答)	p.137 (April 6)
69	~, 我买了这个昨天 (L3)	p.140
70	罗老师,你昨天没有给我们 (L3)	p.146 (April 12)
71	我刷牙每天 (L1 boy)	p.148
72	我每天刷牙 (L1 boy) (说完上一个句子，老师纠正，然后说了这个句子)	
73	为什么我们不可以明天 (L3)	p.160 (April 15)
74	我们的每日一字在 today? (L1 girl)	
75	罗老师，有一个天我们学了两个每日一字 (L4 girl)	p.166
76	我长大以后我要变成一个冰淇淋制造商 (L1 girl)	p.171 (April 21)
77	我以前是认真，可是你说我只要做我的 script (L4 girl)	
78	我们看花木兰的时候可以画一点点吗 (L4 girl)	p.176 (April 27)
79	我长大以后我变成一个，我要变成一个… (L2 girl)	p.183 (May 3)
80	我长大以后我要一个科学家 (L1 boy 2)	
81	我长大以后要做一个科学家 (L1 boy 2) (先说了第一句，老师纠正后，说了这一句；这是他们排练的内容)	
82	我们可以看 while 我们做这个吗 (L3)	p.185
83	我不可以带回家今天 (L4 girl)	p.186

84	我周末去了一个很好玩的地方 (L4 girl)	p.189 (May 4)
85	每天早晚做运动身体好 (L1) (这是书上的句子，老师比划着教他们)	
86	每天我很认真和每天他很认真 (L2 boy 2)	
87	我每天都看我的弟弟，因为他在我家 (L2 girl)	p.190
88	昨天你说明天我们可以做卡 (L2 girl)	
89	我们要说我们长大时候要做什么 (L2 girl)	p.191
90	我长大以后变成一个歌手 (L2 girl)	
91	我长大以后我要做工程师 (L1 boy)	
92	我周末的时候会… (L4 girl)	p.192
93	可是我冬天的时候去海边玩，不是夏天 (L4 girl)	p.197 (May 12)
94	上课时我们要听话 (L1 girl) (我没听清，但老师听清了，重复了一次)	p.203 (May 13)
95	我小时候我喜欢看…(L3)	p.204
96	我 8 岁的时候我很想看… (L4 girl)	
97	在我 5 岁的时候，我可以看到…还有… (L4 boy)	

APPENDIX K - TIME PHRASE – TEACHER

(The page numbers are for the observation notes.)

1	你现在可以做了	p.1 (Feb.11)
2	~ 今天你要把仓鼠拿回家	p.10 (Feb. 12)
3	你们昨天整理了资料夹	
4	当你还是一个很小的孩子的时候	p.19 (Feb.18)
5	明天要考试了	p.24
6	明天接着做	p.25
7	今天是~带仓鼠回家	p.26 (Feb.19)
8	今天你带仓鼠回家你知道吗	
9	今天不做了	
10	因为今天要读 10 分钟 (这句和上句是连着说的)	
11	你们现在要做这个考试	p.28
12	你长大以后想做什么	p.31
13	你长大以后想做歌手	
14	昨天教的	
15	你们出去的时候要说一个句子，不能说词了	
16	现在已经上课了	p.33 (Feb.24)
17	好，我们今天还是有日常问答	
18	~ 我今天让你带…(可能是指仓鼠)	
19	今天我要 ~ 带回家 (可能是指仓鼠)	
20	再玩, 这个星期就该我带回家了(可能是指仓鼠)	p.35
21	再这样，今天就不要再玩仓鼠了	
22	你长大以后想做什么工作	
23	电脑编程员，谁长大以后想做…	p.36
24	昨天已经浪费了很长时间了	p.37
25	你长大以后想做什么	
26	现在不要唱了	p.40 (March 3)
27	今天你高兴吗? 为什么	p.48 (March 4)
28	今天我们做完圈词小考二年级还要…	p.49
29	~ 今天没有来	
30	她今天不能考试	
31	你今天不能玩仓鼠吗	
32	因为你昨天打开了笼子	
33	所以你今天要乖 (这三句是连着的)	

34	我们现在就考试	
35	今天我要教你们这一课	p.50
36	老师在收拾东西的时候，不要让我听到你们的声音	
37	你今天坐在这里	
38	现在要看仓鼠了吗	p.51
39	~ 不该你弄，这个星期该~ 和~	
40	你今天要把仓鼠带回家哦	p.55
41	我说过你今天不能动仓鼠	
42	你们今天很乖	p.61
43	我说你现在做什么你就做什么	p.75 (March 15)
44	~ 今天不该你弄	p.82
45	你明天再改吧	p.83
46	现在每个小组有三个同学	p.85 (March 16)
47	昨天回家后你打扫房间了吗	
48	昨天回家后你看了电视吗	
49	昨天回家后你做了功课吗	
50	你说，昨天回家后我们都没有打扫房间 (教一年级学生说)	
51	昨天回家后你做了功课吗	p.86
52	昨天讲了谁的故事	p.87
53	明天我来帮你们	p.89
54	你明天可以 touch	p.94
55	你下课的时候留下来	p.95
56	昨天我们学了一个什么课文	
57	我们今天又日常问答	p.97 (March 21)
58	现在我们来讲故事	p.99
59	现在不可以出去	p.111 (March 22)
60	每个人跟我说今天学到了什么	
61	下课之后把你的点心拿到教室来吃	p.127 (March 25)
62	这个星期谁拿仓鼠	p.130 (April 4)
63	我们以后星期二和星期四也有每日一字	p.137 (April 6)
64	~ 星期五该你带仓鼠回家	p.145 (April 12)
65	昨天我们学了什么字	
66	~ 上课不能喝水	p.146
67	我今天要写 10 个	p.160 (April 15)
68	老师没有叫你做东西的时候，不要跑过来问	p.163
69	你们昨天没有做祖屋	p.164
70	跟老师说今天学到了什么 (代课老师)	p.180 (April 29)

71	今天有日常问答	p.202 (May 13)
72	我们看一看昨天学了什么	p.203

APPENDIX L – THE TEACHER'S *BA* SENTENCES IN DIFFERENT TYPES

(The first column is the number of Appendix I; the page number is for the observation notes.)

The teacher's *ba* sentences to ask or suggest the students to do something

73	~ 我希望你把那个照相的画出来	p.37 (Feb. 24)
77	你待会儿再把它粘起来	p.37 (Feb. 24)
114	~ 你今天要把仓鼠带回家哦	p.55 (March 4)
151	你要把它写在这里	p.82 (March 15)
174	~ 我看你打孔，你要把它打正面	p.94 (March 17)

Negative imperative sentence

34	你们不要把我的都用完了	p.17 (Feb. 12)
130	你不要把书放得那么难看好吗	p.73 (March 15)
160	你小心把人砸到	p.86 (March 16)

Yes-no questions

9	~ 你有把你的三字经找出来吗	p.1 (Feb. 11)
25	~ 这个星期该你把仓鼠带回家吗	p.5 (Feb. 11)
31	你想把这本书撕了是吧	p.15 (Feb. 12)
75	我们把这个涂成蓝色好吗	p.38 (Feb. 24)
85	你真的要把笼子带回去吗	p.39 (Feb. 24)
149	你把仓鼠的食物放在你家了	p.82 (March 15)
196	你要把你爸妈的头打爆	p.111 (March 22)
240	把你们的柜子都收拾好了没有	p.150 (April 12)

Question-word questions

28	是谁把纸丢在这里的	p.14 (Feb. 12)
49	这是谁把它放在这里 （不清楚）	p.27 (Feb. 19)
64	这是谁把我的书丢在那里	p.29 (Feb. 19)
65	谁把自己的位子装饰得这么漂亮	p.30 (Feb. 19)
67	这是什么你把它放在这儿	p.30 (Feb. 19)
71	为什么你把老师的这个东西都拿来玩了	p.31 (Feb. 19)
110	这是谁把它放在地上	p.53 (March 4)
150	你把它的那包拿到哪里去了	p.82 (March 15)

Statement

19	你把我的头打了	p.4 (Feb. 11)
27	把资料夹拿出来就好了	p.10 (Feb. 12)

29	等一下讲完故事就把它放回去	p.14 (Feb. 12)
40	我已经把它擦好了	p.23 (Feb. 18)
51	把它关上就好了	p.27 (Feb. 19)
74	我们要用手工纸把它贴起来	p.38 (Feb. 24)
79	我想把它带回我家里去	p.38 (Feb. 24)
80	可是你把它给撕了	p.38 (Feb. 24)
81	~ 你没有把你这幅画画好	p.38 (Feb. 24)
109	你可以把它做得更好	p.53 (March 4)
118	我们要把手都拍在 ~ 手上	p.55 (March 4)
119	我们把手都拍在你手上	p.55 (March 4)
134	你把你的书画成这样	p.75 (March 15)
164	~ 过来，我把袋子给你	p.89 (March 16)
167	都把我捏完了	p.91 (March 17)
169	~ 你再说话我就把你送到校长办公室去	p.92 (March 17)
184	你就把你的背对着我吧	p.99 (March 21)
185	每个人说一个句子才能把字卡拿下	p.100 (March 21)
193	你把它做完了，	p.110 (March 22)
194	我就把名字擦掉 (这是和 193 连着的一句话)	p.110 (March 22)
208	你们把我的骰子都弄脏了	p.125 (March 25)
243	它把他们的屁股烧了	p.150 (April 12)
244	说中文他把它杀了	p.150 (April 12)
245	把它变成英雄	p.150 (April 12)
246	你再唱歌，我就把你送到校长办公室去	p.160 (April 15)
250	我就要把你的留下来	p.164 (April 15)
274	你们可以把你们的资料夹带回家复习	p.186 (May 3)

Others

61	你把石头掉在水里	p.29 (Feb. 19)
62	把垃圾掉在…	p.29 (Feb. 19)
205	如果把瓶子推倒就能喝到水的就 (在生词小考)	p.122 (March 25)
257	三年级第七个字换，把球赛换成电视剧的换 (重复)	p.169 (April. 21)

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