Advances in Chinese as a Second Language

Advances in Chinese as a Second Language: Acquisition and Processing

Edited by

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INTRODUCTION

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This past decade has witnessed probably the fastest growth in Chinese language teaching in North America since it was first introduced into university curriculum at Yale University in 1871 (Tsu, 1970). According to the widely cited Modern Language Association survey, for example, Chinese enrollments at American colleges and universities rose from 34,153 in 2002 to 60,976 in 2009.

Accompanying this growth is the emergence of empirical study of the acquisition and processing of Chinese as a second language (CSL). While good empirical studies of CSL acquisition can be found prior to the 2000s (e.g., Jin, 1994; Polio, 1995; Wen, 1994; Yuan, 1995, 1998, 1999), there was a considerable increase in theory-motivated empirical studies that appeared in top-tier second language acquisition (SLA) journals since 2000. These studies covered a wide spectrum of topics such as the acquisition of Chinese characters (Shen, 2005; Williams, 2013), vocabularies (Bai et al., 2013; Shen & Ke, 2007), morphosyntactic structures (Jiang, 2009; Wu, 2011; Yuan, 2001, 2007a, 2007b, 2010; Zhang, 2004; See Zhao, 2011 for a review of research on CSL morphosyntactic development), pragmatic skills (Li, 2010), and CSL learning aptitude (Winke, 2013).

The processing of Chinese by nonnative speakers has received relatively less attention. The small number of CSL processing studies have covered areas such as word recognition (e.g., Bassetti, 2009; Everson, 1998; Liu, Wang, & Perfetti, 2007), and sentence processing (e.g., Su, 2001a, 2001b; Zhao, 2012). An exception is a considerably larger body of literature on tone processing by nonnative speakers which has been an actively explored topic in psycholinguistics (e.g., Hallé, Chang, & Best, 2004; Lee, Tao, & Bond, 2010; So, & Best, 2010; Wang, Behne, Jongman, & Sereno, 2004), but this research is motivated more by theoretical issues of speech perception than by practical issues of CSL instruction.

To promote empirical research on CSL acquisition and processing, the Ph.D. Program in Second Language Acquisition, where I teach, and the

Confucius Institute at the University of Maryland where I was serving as the associate director at the time, decided in 2011 to host an international conference on Chinese as a second language. With support from Hanban, National Foreign Language Center, and the School of Languages, Literatures, and Cultures at the University of Maryland, the conference took place on November 11-12, 2012 at the campus of the University of Maryland. It attracted more than 100 participants and showcased eighty-three presentations on topics ranging from CSL classroom instruction and textbook analysis to CSL acquisition and processing. We selected 11 papers presented at the conference, plus two invited contributions, one from Wang, Liu, and Perfetti, and the other from Paul to be included in this volume. These studies represent current thinking and cutting-edge research on the acquisition and processing of Chinese by nonnative speakers.

Yang and Wu examined the acquisition of the Chinese aspect marker *le* by English-speaking learners in three different learning contexts: study abroad in China, summer immersion in the USA, and regular in-class learning in the USA. They measured the number of *le* produced and number of errors of different types at the beginning and end of the program by the learners and obtained information about the learners' use of the target language and contact hours with Chinese speakers. A group of native Chinese speakers were also tested for comparison. They found Chinese learners produced significantly fewer *le* than Chinese native speakers. They also compared the production of *le* in the pre- and post-tests by the three group learners and analyzed the correlation between various measures of *le* production and the learners' contact profile. The comparisons and correlational analyses presented a complicated picture of how learners' knowledge for *le* developed in different learning contexts and how this development related to linguistic and contextual factors.

Yu Wu explored the effect of corrective feedback in the acquisition of wh-questions by beginning CSL learners. Two groups of CSL learners were involved in the study. Both group received the same explicit instruction on Chinese wh-questions, but during a period of five weeks of classroom instruction, the experimental group received more consistent corrective feedback in the form of metalinguistic prompts than the control group did. A comparison of the two groups in the pretest and posttest, which involved both spontaneous oral production and untimed error correction, showed that the experiment group made significantly more progress in the acquisition of wh-questions.

In Yao's exploratory study, experimental and corpus data were examined in relation to the acquisition of the Chinese aspect marker *le* by

CSL learners. The performance of learners from different L1 backgrounds were compared with that of native speakers of Chinese in a grammaticality judgment task and a sentence making task involving five types of verbs used in the *bei* construction. Both CSL and native speakers showed a preference for the use of *le* in *bei* construction with +telic verbs. The CSL learners were also found to be more accurate with +talic verbs as well in sentence making. Furthermore, the corpus data demonstrated the role of proficiency in the use of *le* in *bei* construction.

Binnan Gao compared heritage and nonheritage CSL learners' narrative writing in order to understand whether there are systematic differences between the two groups and, if yes, the characteristics of each group. Narrative writings by 10 heritage and 10 nonheritage learners were rated by three raters in terms of overall impression, content, organization, and expression (grammar and vocabulary). The raters were also asked to classify each writing as written by a heritage or nonheritage learner and provide reasons for their classification. The results showed that narrative writing produced by heritage learners were rated significantly better than those by nonheritage learners in all four areas. The former group were also found to write longer at both sentence and passage levels, use words from a wider range of difficulty levels, and produce fewer errors. A number of characteristics associated with narrative writings by heritage and nonheritage learners were identified.

Han Luo's study focused on language learning anxiety experienced by heritage CSL learners. 171 heritage learners participated in the study by completing the Chinese Language Learning Anxiety Scale developed by the author and a background questionnaire. Among the six background variables explored (prior formal exposure to Chinese, gender, year in college, elective-required status, heritage-learning status, and proficiency level), the last two were found to be related to the learners' anxiety level. Heritage learners who had no Chinese background had more anxiety than those with Chinese background, and learners of lower proficiencies also had more anxiety than those at a higher proficiency level.

In an attempt to study the effect of instructional tasks on CSL learner performance, participants in Fangyuan Yuan's study were asked to perform a passage reconstruction task, or dictogloss, under three conditions, working individually without an outline, working in pairs without an outline, and working in pairs with an outline. The effect of this manipulation was assessed by considering both the frequency and accuracy in the use of temporal expressions and more global measures such as fluency, accuracy, complexity, and textual quality. The results showed that the paired collaboration group with an outline outperformed

the other two groups in several measures, thus confirming the effectiveness of focused dictogloss as an instructional task.

Haiyong Liu provides an insightful discussion of the cause of some common errors types involving Chinese nouns by English-speaking learners from a linguistic perspective. He points out that Chinese and English differ in two important ways: a) Chinese nouns denote type and are mass nouns while English nouns denote tokens and many are not mass nouns; b) definiteness is often expressed contextually in Chinese but by morphosyntactic means in English. These differences often lead to difficulty in the correct use of Chinese nouns by English speakers both productively and receptively. Pedagogical suggestions are shared that may help overcome such difficulties.

Jessica Rohr explored whether an inductive approach to auditory training would help CSL learners improve their identification of Chinese tones. A group of English speakers with no experience in Chinese participated in a forty-minutes training session in which an inductive approach was taken. The most robust effect shown in the data was the differential performance by participants who used and did not use pitch contour as a cue for tone identification. The contour group performed significantly better than the non-contour group and this group continued to improve between the posttest1 and posttest2. Further findings included the differences in accuracy and different misidentification patterns among the four tones.

Wang, Liu, and Perfetti examined the role of input and orthographic characteristics on the learning of Chinese characters by beginning CSL learners. To this end, they consider how character frequency, visual complexity (number of strokes), character composition (simple vs. compound), spatial layout, the use of traditional version (simplified vs. both simplified and classic), and character type (semantic-phonetic compounds, pictograph/ideograph, semantic compound, others) affected the learning of Chinese characters as measured by the participants' naming time and accuracy, translation accuracy, and familiarity ratings. The results showed that character frequency and visual complexity are the two most important predictors of learners' performance. Participants performed better on high-frequency characters and characters with fewer strokes than low-frequency and more complex characters. Teaching both simplified and classic versions of a character seemed to hamper their performance on simplified characters. Furthermore, The participants also did better on pictographic or ideographic characters than semantic-phonetic compounds. The authors concluded that "*perceptual* learning

dominates early nonalphabetic learning by alphabetic readers, and that the *functional* regularities of character components may be a later acquisition".

Sha Huang explored the strategies CSL learners use to infer the meanings of unknown Chinese words in a case study. The participants were asked to read a message and then interviewed about the strategies they used and their perception of the usefulness of these strategies. The author identified seven strategies (in the order of frequency of reported use): using character meaning, sentence context, world knowledge, known words/phrases, syntax cues, radical knowledge, and pronunciation/pinyin. The participants were also found to consider sentence context and world knowledge as the most useful strategies. A close look at the data from the two most successful participants in inference suggested that they were able to use multiple strategies. It was also found that not knowing the meanings of a component character, or not knowing the right meaning of a component character with multiple meanings, and a lack of accurate parsing of syntactic structure were major obstacles for successful inference.

Shuyi Yang's study was intended to explore how novel noun-noun compounds were interpreted by CSL speakers of different proficiencies. 45 novel compounds belonging to three categories, MADE OF, FOR, and PROPERTY, were created as stimuli. Three groups of CSL speakers that differed in proficiecies and a group of native speaker controls were tested. They were asked to provide the meanings of these novel compounds in Chinese or another language of their choice. Their accuracy scores were obtained by comparing the meanings they provided and the meanings that were considered acceptable by the researcher. The results showed that native speakers outperformed CSL speakers, but the three groups of CSL showed no significant difference. Additionally, CSL speakers' accuracies decreased among the three types of compounds in the order of FOR, MADE OF, and PROPERTY.

Yaqiong Wang and Liping Feng examined the difficulty order of three types of relative clauses in comprehension and production by CSL learners. The participants were asked to listen to Chinese sentences with relative clauses and translate them into English (Experiment 1) or listen to English sentences with relative clauses and translate them into Chinese (Experiment 2). The results showed a similar pattern in both comprehension and production, with relative clauses that involved the object of preposition being the most difficult, those involving direct objects being the easiest, and subject-extracted relative clause being between the two.

Jing Paul compared CSL learners and native Chinese speakers in the expression of caused motion events. Both groups viewed the same set of video clips demonstrating caused motion events and were asked to describe them in Chinese. Three major differences were found between the two groups. Unlike native speakers who encoded Cause and Path equally often, CSL speakers' descriptions mentioned Path significantly less often than Cause, CSL speakers were also found to use disposal constructions less than native speakers, and finally, CSL speakers often failed to provide specific Path information in their description.

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PART I.

ACQUISITION OF CHINESE AS A SECOND LANGUAGE

ACQUIRING THE PERFECTIVE ASPECT MARKER *LE* IN DIFFERENT LEARNING CONTEXTS

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Introduction

This paper examines learners' acquisition of the perfective aspect marker (PFV) *le* in the three most common learning contexts for American learners of Chinese: at home formal instruction program (AH), domestic immersion program (IM) and study abroad program (SA). The study seeks associations between the change in PFV *le* production and the contextual factors the three learning environments provide. It does so by comparing learners' PFV *le* production through pre and post proficiency tests in the three settings, and through examining the language contact profiles of those settings.

Second Language Learning Context

Situated in the larger debate on whether L2 acquisition is context sensitive (Collentine & Freed, 2004), this study investigates the effects of learning contexts on a narrow aspect marker of Chinese. In the past three decades, both linguistic and socio-cultural features have been observed in study abroad (SA) environments. Scholars have also compared the three major settings (SA, AH, IM) by examining learners' gains in different aspects, including oral fluency of French and Spanish (Freed et al., 2004; Segalowitz & Freed, 2004), grammatical and lexical gains (Collentine, 2004), and phonological development (Díaz-Campos, 2004). Most of these studies found significant differences across learning contexts, lending support to a context-sensitive account of SLA (Collentine & Freed, 2004). Some research (Isabelli, 2000) indicated that the SA experience is conducive to grammatical development, while others (DeKeyser, 1991;

Díaz-Campos, 2004; Isabelli, 2000; Regan, 1995) failed to show any advantages in SA. Meanwhile, some qualitative studies on learners' socio-cultural gains such as social-pragmatic development during SA homestays have proven fruitful (e.g. Cook, 2008; DuFon, 2006). Others, on the other hand, have demonstrated great variability in the homestay experience (e.g. Rivers, 1998; Wilkinson, 1998; Kinginger, 2008).

Chinese lacks a transparent aspect system, which makes acquisition of aspect markers notoriously difficult. Even after explicit instruction, learners still cannot use aspect markers well in natural speech production. Thus, the question of whether learning outside the classroom, such as contact between native speakers and an L2 learner, facilitates acquisition of aspect markers is an important one. The preponderance of existing research on the effects of contexts compares learners' gains in major foreign languages in the U.S. However, there has been a paucity of studies of this kind on learners of Chinese. To further investigate the influence of L2 learning contexts on different linguistic skills of a different language, this study focuses on a narrow aspect marker in Chinese – *le*.

Perfective Aspect Marker *Le*

Aspect is a verbal inflection that expresses a kind of morphosyntactic category (Comrie, 1976). Aronoff and Fudeman (2008) assert that "[a]spect has more to do with the way in which we view the unfolding of an event than with its simple position in time" (159). In many languages, the perfective aspect, denoting a completed or bounded event, is one of the mostly used. In (1), the event "eat the apples" has completed and there is an endpoint for this event. Therefore, "has eaten" indicates the perfective aspect.

(1) He has eaten the apples.

In Mandarin, one of the functions of *le* is to serve as a perfective aspect marker (PFV). When used as a PFV, *le* indicates an event which has already occurred, or as bounded (Li & Thompson, 1981; Sun, 2000). In (2), there are two events: "eat lunch" and "go to class". When the second event happens, the first event would have completed. Therefore, the *le* after the verb in the first event indicates a completed event.

The other type of *le* is a final particle in a sentence that signals a "Currently Relevant State" (CRS), in which "a state of affairs has special current relevance with respect to some particular situation" (Li & Thompson, 1981:240). The *le* in (3) is an example of the CRS usage.

(2) 我 明天 吃 了 午饭 就 去 上课
wo mingtian chi LE wufan jiu qu shangke
I tomorrow eat PFV lunch immediately go class
I'll go to class immediately (after) eating lunch.

(3) 我 要 去 了
wo yao qu LE
I will go CRS
I am going now.

The data collected for this paper showed that few learners used the CRS *le*. It was therefore decided to focus on the study of the PFV *le*.

Li and Thompson (1981) listed different kinds of events in which the PFV *le* could occur: a quantified event, a definite or specific event, an inherently bounded event, and the first event in a sequence. Major beginning Chinese textbooks, such as *Integrated Chinese* (2005; 2008), explain the grammar point "V+*le*" based on these events. Smith (1994) proposed a temporal schema that accounts for the perfective meaning of PFV *le*, which occurs in a situation that needs an endpoint (Sun, 2000). Whether an event has an endpoint that denotes a completed event is also related to the verb types.

Besides *le*, there are some alternative ways to express bounded events, such as resultative complements, directional complements indicating results, preposition phrases indicating location or destination and so forth (e.g. Li & Thompson, 1981).

Second Language Acquisition of *Le*

Le's complexity and multifunctionality make it one of the most challenging grammatical elements for learners of Chinese. Studies of *le* in the field of Chinese as a second language (CSL) have been conducted from various perspectives and the results are mixed.

Researchers have studied *le* in various types of speech including oral speech (Wen, 1995), written materials (Teng, 1999), and both (Duff & Li, 2002). Learners can spend more time on planning a written speech while less time is spent during spontaneous oral speech, which can directly reveal how learners use *le*. Therefore, the current research uses oral speech production.

Additionally, some studies (e.g. Sun, 1993; Zhao, 1996) indicated that learners were inclined to use *le* in some contexts where *le* is not needed, while other studies (e.g. Duff & Li, 2002) pointed out that learners tend to undersupply *le* when the use of *le* is obligatory or optional. Some studies did not have baseline data, such as production of *le* by native speakers, making it difficult to judge oversupply or undersupply. For this reason, the current study first compares native speakers' speech with non-native speakers' speech to observe the production of *le*.

PFV *le* has been explored in different learning contexts. For example, Zhao (1996) collected data in the SA context, while Wen (1995) explored learners' acquisition of *le* in the AH context. However, they did not make comparisons across learning contexts.

Studies also revealed that learners' use of *le* is related to syntactic contexts and semantic meanings. Researchers found that learners used *le* in association with some adverbs such as y*ijing* "already" (Wen, 1995; Duff & Li, 2002). American learners transferred the past tense marker –ed in their native language to the PFV marker *le* in Chinese (Duff & Li, 2002). The acquisition of *le* is also influenced by some syntactic structures, such as resultative complement (Duff & Li, 2002), or definite or quantitative object after a verb (Zhao, 1996). Features of actions, events, and temporal information also affected the usage of *le* (Duff & Li, 2002). Most studies agreed that while the form of *le* is not hard to acquire, the multifunctional usages of *le* related to different linguistic dimensions make it challenging for learners to acquire. This is because the aspect system in Chinese is different from that in English. The acquisition of *le* is influenced by the degree of how learners acquire the interface between the form and the function and the features of pedagogy. Wen (1997) attributed the difficulty of learning *le* to its nature as a morphological and semantic interface. Some research (Ke, 2005; Yuan, 2012) suggests that explicit instruction can facilitate *le* acquisition. However, it is still not clear whether and how the external factors including learning contexts influence internal acquisition of *le* implicitly.

The present study

The current research examined the linguistic and contextual factors to explore whether and how language contact outside the classroom influences the acquisition of the PFV *le* in the three different learning contexts. The research questions are:

1. Are there any differences in *le* production between native speakers (NS) and non-native speakers (NNS) in the SA, IM and AH program?
2. Do language contact factors vary in the three learning contexts?
3. What are the differences between pre-test and post-test results in each context?
4. To what extent is *le* production correlated with the language contact factors in each context?

Methodology

Participants

A total of 41 American learners of Chinese (mean age: 20.90; range: 18-34; 27 males, 14 females) and 10 native speakers of Chinese (mean age: 25.50; range: 22-29; 5 males, 5 females) participated in the study. Since most students in SA and IM programs take second and third year Chinese courses, we only recruited students who were learning second or third year Chinese. Having taken Chinese for one or two years in the U.S., the American participants' language proficiencies were assessed in the pre-test as between beginning-high to intermediate-mid.

The three learning contexts were study abroad programs at universities in China (SA), summer immersion at a private liberal arts college in the US (IM), and study at-home in a public university in the U.S. (AH). The native speaking participants were international students in a public university in the U.S.. Table 1 summarizes the information of the learners in the three programs.

Table 1. ***Summary of the Learner Information in the Three Programs***

Context	Age		Gender		Program Duration
	Mean	Range	Male	Female	
SA	20.63	19-24	11	5	2-3 months
IM	20.13	18-24	10	5	2 months
AH	22.44	19-34	6	4	9 months

Instrument

The proficiency test was a 20-minute short-form speaking test. In the test, four of the questions were adopted from the Simulated Oral Proficiency Interview (SOPI) developed by the Center for Applied Linguistics (1992) and the fifth question was designed by the researcher. The test covers topics of picture description, favorite reading, whether to eat at home or in a restaurant, how to job hunt in the U.S., and introducing one's family (see Appendix A). All learners of Chinese also filled out pre and post modified language contact profiles (LCP, Freed, Dewey, and et al., 2004).

Procedure

Each learner of Chinese took the proficiency test individually at the beginning and the end of the program. The pre and post proficiency test (hereafter pre and post-test) were identical. The participants were given a test sheet while instructions were delivered through headphones attached to a computer. The 10 native speakers of Chinese took the same test a single time at the beginning of the study. In the SA and IM programs, participants' speech was recorded with an Olympus LS-10 Linear PCM Recorder and a Sony ECMMS907 Digital Recording Microphone. The AH students and native speakers of Chinese were recorded in a phonetics lab at the university. Each learner of Chinese also filled out the pre and post language contact profile (hereafter the pre and post-profile) at the beginning and the end of the programs respectively.

Data Analysis

Transcription. One researcher and a Chinese native speaker transcribed the pre and post- test recordings into Chinese characters. The other researcher checked the transcription before coding and analyzing the data.

Le Coding. All instances (correct and erroneous usages) of *le* were classified into types of PFV, for example (2) and (4), or CRS *le*, for example (3) (Li and Thompson, 1981). As noted previously, the CRS *le* is not analyzed in this research. "除了" (except), "为了" (for the sake of), which occur at the beginning of a phrase or a sentence, and "忘了" (forgot), which occurs in the middle or at the end of a sentence, were not included because *le* does not express tense or aspect in these set phrases in modern Chinese.

(4) 拿 了 一个 电视
na LE yige dianshi
take PFV One: CL TV
took one TV

When *le* was used in a disposal sentence or had a passive marker, and/or there was a verb with a resultative complement, *le* was considered PFV at sentence final, for example (5).

(5) 他 把 窗户 打 坏 了
ta ba chuanghu da huai LE
he make window hit broken PFV
He broke the window.

When there is a repetition, for exammple (6), *le* is only counted as one token.

(6) 打 破 了 打 破 了 窗
da po LE da po LE chuang
hit broken PFV hit broken PFV window
broke broke the window

Erroneous usage includes both instances of oversupply and instances of undersupply in obligatory contexts (cf. Duff & Li, 2002). Error of oversupply refers to the misuse of *le* per se, for example (7), or overuse of *le*, for example (8). Errors of matching components were coded as correct usages. For example, (9) illustrates a common mistake among the participants - the missing of "到" (arrive at), a directional compliment indicating a result, or "见" (see), a resultative complement. Although the missing of 到 or 见 is ungrammatical, the use of *le* is correct.

Instances of optional undersupply were also coded. If a learner produced a simple sentence with "看到" (saw) or "看见" (saw) without *le*, for exxample (10), it was considered correct as NS either omit *le* or use le used *le* in this kind of contexts.

(7) *等 一下 了
deng yixia LE
wait a little CRS
*waited a little

(8) *他 想 偷 了 一个 电视
ta xiang tou LE yige dianshi
he want steal PFV One: LC TV
He wants stole a steal TV.

(9) *看 了 那个 人
kan LE nage ren
look at PFV that person
looked at that person

(10) 我 看到 一个 人
kan kandao yige ren
I saw One: CL person
I saw one person

Language Contact Profile Coding. The language contact profiles were coded into categories of purposes of communication and people of contact. Only the post-profiles in the three learning contexts are compared. For purposes of speaking Chinese, items in the post-profiles are coded into 1) learning, 2) basic living, 3) social activity, and 4) entertainment. Learning refers to activities directly related to the curriculum, such as doing homework. Basic living is language used to carry out the activities of daily life like asking for directions or purchasing food at a market. Social activity refers to communication beyond learning or basic living, for example, discussing Chinese foods with a Chinese roommate. Entertainment includes activities which are not necessary but add to the fun of life, for example watching TV.

All items (see Appendix B) were identified and calculated into the total hours per week. The one exception to this rule was "reading e-mail or the Internet web pages in Chinese outside of class." That activity was assessed to be 50% "basic living" and "50%" "entertainment".

The study identified five categories of "people of contact": instructor, native friend, classmate, host family member, and service personnel. These categories were compared (see Appendix C), noting that the host family and service personnel categories were only applicable to the SA context.

In order to ensure comparability, we calculated hours per week by academic week in AH across all three contexts. The three programs are of different duration. To address this issue, hours per week in the SA and IM programs are calculated in terms of 9 months, which was the same as the

AH program, thereby making the hours of contact comparable across contexts.

Certain items, such as brief exchanges with the host family, Chinese roommates, or acquaintances in a Chinese speaking dormitory, and so forth, were not applicable to AH or/and IM context, and therefore 0 hours were counted.

Results

Comparison of *le* Production between NS and NNS

A comparison of the means of NS and NNS *le* production is presented in Table 2. Occurrences included both correctly produced *le* and commission of *le*. The mean of *le* production by NS is much higher than that of NNS in both pre and post-test (see Table 2). The standard deviation (SD) indicates individual difference between NS is larger than those of NNS.

Table 2. ***Comparison of means of le occurrence***

	Pre-test		**Post-test**	
	mean	**SD**	**mean**	**SD**
SA	1.00	1.26	1.69	1.66
IM	0.80	1.15	1.20	1.21
AH	1.50	2.01	1.50	2.59
NS	5.70	3.13		

T-test results indicate that the number of *le* produced by NS is significantly higher than that of NNS in any context ($p<0.005$, see Appendix D), for both pre and post-test. The result reveals that the use of *le* by NNS is undersupplied, compared with NS production.

Comparison of Language Contact Profiles for the Three Contexts

The results of average hours per academic week used for different purposes in each context are listed in Table 3. The total mean hours in the SA context were higher than those in the IM and AH contexts. Except learning in SA and IM contexts, SD indicates that individual differences for most items are large. This, in turn makes clear that speaking Chinese for basic living, social activity and entertainment varies from person to person.

Students speak Chinese for basic living in the SA context, and it shows a larger advantage. Most students in SA contexts use about 4.02 hours per academic week for learning outside classroom comparing with 5.28 hours in the IM context.

Table 3. ***Hours per Academic Week of speaking Chinese for various purposes***

		Learning	Basic Living	Social	Entertainment	Total
SA	**Mean**	4.02	13.45	4.38	5.91	27.76
	SD	2.12	10.94	4.43	10.28	
IM	**Mean**	5.28	6.66	5.05	4.54	21.53
	SD	2.54	5.11	6.27	3.97	
AH	**Mean**	5.17	0	7.89	7.56	20.62
	SD	6.86	0	11.61	6.41	

Table 4 illustrates that SA provides students with a slight advantage through its unique contextual factors of host family and service personnel. Students spent more time talking with their instructors outside of class in the SA and IM contexts. The larger SD for the item "instructor" in the AH context suggests that some students talked with instructors more while other students seldom talked with their instructors. The individual analysis of the language contact profiles shows that only two students often talked with their instructors while others rarely did.

Students in the AH context spent a little more time talking with their NS friends than those in the SA context. Students in the SA and IM contexts spent much more time talking with their classmates in Chinese than those in the AH context.

In Table 4, we also see that students talked more with instructors and classmates than other people in the SA and IM contexts. The time students spent on talking with instructors and classmates in the SA and IM contexts is also much longer than that students spent in the AH context. In the AH context, students talked with people from each category equally.

Table 4. ***Chinese contact hours per Academic Week outside the class***

	Instructor		NS friend		Classmate		Host family		Service personnel		Total
Context	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	
SA	3.51	3.05	1.93	2.27	4.01	4.5	1.03	1.27	1.01	0.86	11.49
IM	3.69	3.50	0	0	3.93	2.57	0	0	0	0	9.88
AH	2.36	4.9	2.31	2.86	2.70	2.58	0	0	0	0	8.51

Comparison between pre and post-tests in each context

Six items were compared between pre and post-test in each context (Table 5). Correct usages, oversupply, obligatory undersupply and optional undersupply are the coding categories introduced in the Methodology section of this paper. In Table 5, the occurrence of *le* includes numbers of correct and oversupply of *le*, while errors include number of oversupply and obligatory undersupply. One-way ANOVA was conducted to compare the pre-tests in the three contexts, with regard to the six coding categories. The results indicate that the pre-tests do not differ significantly in the three learning contexts. T-test results for the difference between pre-test and post-test in three contexts are presented in Table 5.

Table 5. ***T-test results for the difference between pre-test and post-test in three contexts***

		SA	IM	AH
Correct	t	-1.1744	-0.1726	0.1114
	p-value	0.1247	0.4321	0.5437
Oversupply	t	-0.9583	-1.6536	-0.447
	p-value	0.1728	*0.0547	0.33
Obligatory undersupply	t	-0.8145	-0.3282	-1.0681
	p-value	0.2109	0.3726	0.1498
Optional undersupply	t	-0.8497	-0.2	-0.6325
	p-value	0.2011	0.4215	0.2675
Occurrence	t	-1.3166	-0.9306	0
	p-value	*0.099	0.18	0.5
Total errors	t	-1.4481	-0.8714	-1.8858
	p-value	*0.079	0.196	**0.0378

*p‹0.1; **p‹0.05.

In this table, we find that the difference of the error numbers between pre-test and post-test in the SA context shows a near-significant trend (P=0.079), which means that the number of errors in post-test is much more than that in pre-test.

In the IM context, the number of oversupply is approximately significant between pre-test and post-test (P=0.055), which reveals markedly more misuse or overuse of *le* in post-test. In the AH context, the number of errors alters significantly between pre-test and post-test (P<0.05), registering more errors in the post-test.

Correlation between Language Contact and *Le* Production

The results demonstrate that there is little correlation regarding language contact and *le* production. Only moderate correlations are present with *le* error reduction in learning outside class in SA and IM, and more social activities manifest moderate correlation to *le* error reduction in SA. (see Appendix E).

The results of the correlation between people of contact and *le* production including occurrence as well as errors, show three moderate correlations (see Appendix F). Contact with instructor has a moderate association with reducing errors in SA; language contact with classmates has a moderate correlation to *le* occurrence in SA and IM. Contact with host family and service personnel are exclusive in SA, and yet the correlations are both weak.

Discussion

This study's comparison of means of *le* production by NSs and NNSs established the NS baseline, and found that NS production of *le* is significantly more than that of NNS. Our finding is consistent with Duff & Li's (2002) that NNS learners of Chinese tend to undersupply *le* (444).

More *le* Errors in All Learning Contexts

To further compare the three learning contexts, this study evaluated the changes in *le* occurrence and errors made between pre and post proficiency test.

In all learning contexts, learners produced more errors. The numbers of errors increased markedly in SA and AH, while the number of oversupply errors increased in IM. Nevertheless, more errors do not necessarily mean less progress (Ortega, 2009: 40). However, the correlations between *le* errors and communication purposes and people of contact are weak (Appendix E and F), which cannot explain the reasons for more errors of *le*. We will further discuss this in the last section (internal linguistic system and learning context).

Le Production and Communication Purposes

Our investigation of the association between *le* production and language use for different purposes demonstrates weak correlations for most contextual factors except learning in SA and IM and social purpose in SA. Activities of basic living are a unique factor in SA and IM. However, the correlations between *le* production and basic living are rather weak. This suggests that acquisition of *le* is not strongly influenced by daily communication in the target language, at least not over a short period of time.

With regard to learning purpose, if students spent more time on learning outside the classroom in SA and IM, they produced fewer *le* errors. This correlation is moderate. Since the main proficiency level of students participating in this project was intermediate, *le* was still taught or reviewed as a grammar point in their classes although this instruction only occupied a small amount of time. Spending more time on homework, or reviewing course-related materials could help students use *le* patterns in appropriate situations in SA and IM. Students in intensive SA and IM programs only take one Chinese language course[1]. In contrast, AH students were already taking more than two courses outside of the Chinese language specialty, which would preclude such a focus. Meanwhile, AH students can take two Chinese language courses, including a conversation class that mainly focuses on communication rather than grammar. In this case, more homework or course-related materials could involve in less grammar-focused practice, such as work on *le* usage. It is understandable that AH exhibits less correlation between fewer errors and learning hours.

Because multiple courses are selected in AH, each student spent an individually specific amount of time on Chinese according to his or her motivation, learning strategies, and so forth. This highly individuated study time profile accounts for the larger SD for learning in AH (Table 3) when compared with those in SA and IM.

The results also indicate a moderate correlation between a reduction of *le* errors and social purpose in the SA context. Undoubtedly, SA context provides student with more opportunities to engage in social activities in Chinese. Various inputs with different topics during socialization could help learners reduce errors.

[1] The information is from LCP (language contact profile). As mentioned in the methodology section, the LCP used in the current study is based on LCP (Freed, Dewey, and et al., 2004) in which the course information of each student is included.

LE Production and People of Contact

The association between *le* production and people of contact also demonstrates weak correlations for most contextual factors. In SA, the correlation between contact with instructor and error reduction is moderate, while the correlation between contact with instructor and occurrence is weak. In IM, the correlation between contact with instructor and occurrence/errors is weak. SA and IM learners spent almost all of their time on learning Chinese in an intensive program either in China or in the US, and they lived close to their teachers or their teachers lived in the same dormitory with them. This provided learners with more opportunities to talk with their instructors, and is the reason why contact hours with instructors in SA and IM are greater than those in AH (Table 4). Instructors in summer IM programs intend to spend most of their time with the students during activities of basic living such as having meals together. This means student-teacher interactions are more likely to be directly relevant to daily life and communicative rather than formal and corrective. This result and the weak correlation between *le* and basic living (discussed in the previous section) supports the view that *le* acquisition is not strongly influenced by daily communication, at least not in the short term. However, instructors in SA programs do not eat with their students. The background observations suggest students benefit just as much by meeting and talking with instructors on campus or in the shared dormitory. In fact, this diversity of encounters would permit a wider range of discussion topics, allowing students more inputs and feedback from their instructors. In AH programs, students spent less time in contact with their instructors outside of the classroom, since students generally take various courses besides Chinese language classes. This also results in highly individualized differences in terms of successful *le* usage (see Table 2).

It is interesting that while the influence of classmates on *le* occurrence is moderate, its influence on error reduction is weak in SA and AH. Table 4 also indicates that contact hours with classmates in SA and IM are much longer than those in AH. A possible explanation is that learners in SA and IM environments have the opportunity to spend more time together, hanging out together and helping one another with homework. Classmates in AH, on the other hand, do not usually spend as much time together once they leave the classroom, in part because they are taking non-Chinese language courses that expose them to vastly different cohorts of classmates. However, contact with classmates may not be conducive to improving accuracy. Most studies have showed that contact with NS in SA is an important learning context factor for facilitating linguistic gains while