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The acquisition of comparative constructions by English learners of Chinese: An explorative study from a college Chinese language classroom

Abstract: This explorative study reports how three types of comparative constructions in Mandarin Chinese, namely adjectival, adverbial and differential comparatives, are acquired by English learners in a college Chinese-language classroom. We start with a hypothesis that the syntactic structures of the adverbial comparative and the differential comparative will be a potential challenge to learners because these two constructions are neutralized in English comparatives. However, the results of the three in-class tests we conducted indicate that learners have more difficulty with the adjectival comparative and the adverbial comparative than the differential comparative. Based on these results, we discuss effects of L1 transfer, difficulties in acquiring structures that involve optional components, and differences between heritage and non-heritage learners in learning Chinese as a second language.

Keywords: comparative constructions, adjectival comparatives, adverbial comparatives, differential comparatives, Chinese language acquisition, L1 transfer, heritage learners

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1 Introduction

In Chinese, comparatives are expressed in three different ways depending on whether the predicate of a sentence is an adjective (1a), an adverbial construction (1b), or a differential construction (1c).

(1) Chinese comparatives

a. Adjectival comparative

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约翰 比 玛丽 高 三英寸。
Yuēhàn bǐ Mǎlì gāo (sān yīngcùn).
John than Mary tall (three inches)
'John is (3 inches) taller than Mary.'
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b. Adverbial comparative

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约翰 比 玛丽 (读书) 读得多。
Yuēhàn bǐ Mǎlì (dúshū) dú-dé duō.
John than Mary (read books) read-DEmuch
'John read more than Mary.'
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c. Differential comparative

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约翰 比 玛丽 多读了 两本书。

Yuēhàn bǐ Mǎlì duōdú-le liǎngběnshū.

John than Mary much read-ASP two CLbook

'John read two more books than Mary did.'
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When we compare the three comparatives in (1) to their English counterparts, they differ in the following aspects. First, the adjectival comparative in (1a) contains a bare adjective (i.e. an adjective without a comparative suffix), whereas in the equivalent expression in English, John is (3 inches) taller than Mary, the adjective tall is suffixed with the comparative marker -er. This is because bare adjectives in Chinese, in contrast with those in English, have an inherent comparative meaning. Thus, the Chinese sentence 他高 tā gāo [he tall] means 'He is taller', and not 'He is tall'. Second, the adverb 多 duō 'much' in (1b) and (1c) appears in different positions relative to the verbal predicate 读 dú 'to read'. In (1b), 多 duō 'much' follows the verbal predicate, while in (1c) 多 duō 'much' directly precedes the verbal predicate. In the corresponding English sentences, John read more books than Mary and John read two more books than Mary, the word more, which corresponds to 多 duō 'much' in Chinese, only appears in front of the nominal predicate books. Third, the requirement for a differential differs in Chinese and English. In Chinese, the adverbial comparative in (1b) does not allow a differential, as it is ungrammatical to say: *约翰比玛丽读书读得多两本 Yuēhàn bǐ Mǎlì (dúshū) dú de duō liǎng běn, which is intended to mean: 'John read two more books than Mary'. The differential comparative in (1c) requires a differential. Without the differential 两本书 liǎng běn shū 'two books', (1b) becomes ungrammatical (i.e. *约翰比玛丽读 Yuēhàn bǐ Mǎlì dú). In English comparatives, a differential is always optional.

These differences in word order between Chinese and English comparatives predict that English learners of Chinese would show errors due to transfers from

English comparatives. First, English learners would use Chinese bare adjectives as non-comparative. Second, the word order differences between Chinese and English would predict that English learners would misplace the adverb 多 duō 'much' or omit a differential in the differential comparative where the differential is required.

Outside of the acquisition literature, Chinese comparatives have been well studied (Erlewine 2007, Li and Thompson 1981, Li 2013, Lin 2009, Liu 1996, Xiang 2005, 2007 and references therein). These studies mainly discuss and analyze the syntax and semantics of the adjectival comparative with the primary exception of Li (2013) where the adverbial comparative and the differential comparative are analyzed in detail. Many studies on Chinese comparatives come from the perspective of comparative linguistics. These studies show differences and similarities between Chinese and other languages, but they do not focus on acquisition patterns of comparative constructions by learners of Chinese.

In recent years, the study of comparative constructions in the acquisition Chinese as a Second Language has attracted much attention (Jiang 2009, Liu 2011, Tao 2012, 2011, Xu 2009, Zhou et al. 2007). Most of these studies only focus on the adjectival comparative, excluding the adverbial comparative and the differential comparative. A representative study is Zhou et al. (2007: 140-213) where various Chinese constructions that can be challenges to learners of Chinese are examined. Zhou et al. (2007) present their findings through error analyses of the adjective comparative and the adverbial comparative. The differential comparative is also mentioned in passing without going much into detail (Zhou et al. 2007: 146). Data in their study was collected from various Chinese classes held in various higher education institutes. The difficulty in the acquisition of Chinese comparatives is explained as the word order differences. In Japanese and Korean, a differential precedes the comparative adjective. In Chinese, however, the measure phrase follows the comparative adjective. The general word order in Thai is the same as in Chinese (SVO), but the standard of comparison in Thai follows the predicate whereas it is the opposite in Chinese. Zhou et al. report that learning difficulties are expected when such word order differences are present.

Although the data of the study by Zhou et al. (2007) is first presented in an a posteriori way, the interpretation of the data is mainly informed by an a priori error analysis within the framework of the Contrastive Analysis Hypothesis (CAH), first proposed by Corder (1967). The a priori approach aims to predict learners' difficulties in acquiring an L2 by comparing the differences between the target language (TL; English in Zhou et al.) and the native language (NL; Japanese, Korean and Thai in Zhou et al.). The authors acknowledge that grammatical similarities between two languages do not guarantee easiness of learning (Zhou et al. 2007: 199). Schachter (1974) already reports in a study of the acquisition of relative clauses that errors in fact can occur more when two languages are similar. but not identical. Under this ground, she cautions that an a priori approach may not fully explain learners' errors.

Our study complements Zhou et al. and other previous studies in two ways. First, we introduce comparative acquisition data by English learners of Chinese, which was missing in their study. English has the same word order as in Chinese, but the standard of comparison appears in a different position, similar to the situation for Thai learners. Second, our study also examines the acquisition of the differential comparative, which did not receive much attention in Zhou et al.

The acquisition of Chinese comparatives by L1 English learners is a nontrivial task because of the divergence in the syntax-semantic dimension of the grammar of Chinese. A major goal of our study is to fill this gap by describing which patterns English learners of Chinese show in the acquisition process based on a classroom study. Results of the classroom study will be discussed from viewpoints of L1 transfer effects and other classroom related issues.

To a certain degree, this study will also discuss the fact that the differential comparative is not introduced in most Chinese learning textbooks used in college classrooms. Reporting results from a classroom study, we will show that teaching various comparatives is not only feasible but also beneficial to learners who will be able to express a wider range of comparative situations in grammatical wavs.

In the next section, we will first discuss three types of comparatives in Chinese. The syntax and semantics of Chinese comparatives will then be compared to English comparatives so that points of difficulties in learning can be identified. In section 3, a classroom study will be reported. In order to probe learners' knowledge, the report will be composed of results from three different types of quizzes that were conducted after each lesson. The findings of the classroom study as well as implications of our findings for teaching Chinese comparatives will be discussed in the remaining sections.

2 Comparatives in Chinese and potential challenges for L1 English learners

In this section, we provide a more in-depth discussion of the three types of comparative constructions, namely, adjectival comparatives, adverbial comparatives and differential comparatives. The word order difference between Chinese and English as well as the difference in the obligatory nature of a differential are the potential challenges for Chinese learners of English.

2.1 The adjectival comparative

The structure of the adjectival comparative in Chinese is seen in (2).

(2) Example of an adjectival comparative

Subject	Comparative marker	Standard of comparison	Predicate	Differential	
这件衬衫 zhè jiàn chènshān	比 bǐ	那件衬衫 nà jiàn chènshān	贵 guì	(五块钱)。 (wǔ kuài qián)	
this CL shirt than that CL shirt expensive (five dollars) 'This shirt is (5 dollars) more expensive than that shirt.'					

The adjectival comparative in (2) contains the following components: a subject 这 件衬衫 zhè jiàn chènshān 'this shirt', a comparative marker 比 bǐ 'than', a standard of comparison 那件衬衫 nà jiàn chènshān 'that shirt', an adjectival predicate 贵 guì 'expensive', and an optional differential 五块钱 wǔ kuài qián 'five dollars'.

Compared to English comparatives, Chinese comparatives do not have a comparative morpheme corresponding to more or -er in English. Bare adjectives in Chinese such as 高 gao 'tall' have an inherent comparative meaning as in (3a). For a non-comparative meaning, Chinese usually uses 很 hěn 'HEN' in front of an adjective as in (3b).

(3) Bare adjectives and adjectives with hen

a. 约翰 高。

Yuēhàn gāo.

John tall

'John is taller (than someone salient in the context).'

Inherent comparative meaning

b. 约翰 很 高。

Yuēhàn hěn gāo Iohn HEN tall

'John is tall.'

No comparative meaning (Li and Thompson 1981: 143) For English learners of Chinese, the acquisition of the adjectival comparative can be challenging because bare adjectives are used in the place where English adds *more* or *-er* to express a comparative meaning. Using bare adjectives in comparative constructions follows the inherent property of Chinese adjectives as shown in (3).

2.2 The adverbial comparative

The adverbial comparative, as exemplified by the sentence in (4), consists of the following components: a subject 约翰 $Yu\bar{e}h\dot{a}n$ 'John', a comparative marker 比 $b\bar{i}$, a standard of comparison 玛丽 $M\ddot{a}l\hat{i}$ 'Mary', and a verbal predicate followed by the morpheme 得 de and a manner adverb such as 多 $du\bar{o}$ 'much' or 快 $ku\dot{a}i$ 'fast'.

(4) Example of an adverbial comparative

Subject	Comparative Marker	Standard of comparison	Predicate		Differential
约翰 <i>Yuēhàn</i> John 'John rea	比 <i>bĭ</i> than ads more/faster	玛丽 <i>Măl</i> i Mary than Mary.'	读得 <i>dú-de</i> read-DE	多/快 duō/kuài much/fast	Not Allowed

What is interesting about the adverbial comparative is that, unlike the adjective comparative, the adverbial comparative does not allow differential expressions that describe a specific difference between two things under comparison. Thus, adding a differential such as 两本书 $li\check{a}ngb\check{e}nsh\bar{u}$ 'two books' to express the difference between what John read and what Mary read as in (5), results in an ungrammatical sentence.

(5) Adverbial comparative with a differential is ungrammatical

*约翰	比	玛丽	读得	多	两本书。		
*Yuēhàn	bĭ	Mălì	dú-de	duō	liǎng běn shū.		
John	than	Mary	read-DE	much	two CL book		
'John read two more books than Mary did.'							

In the adverbial comparative, verbal predicates cannot be used alone and have to be modified by manner adverbs such as 多 $du\bar{o}$ 'much' through the morpheme 得 de.

(6) Manner adverbs are required in the adverbial comparative

*约翰	比	玛丽	读。
*Yuēhàn	bĭ	Mălì	dú.
John	than	Mary	read

For L1 English learners, the challenge of learning the adverbial comparative is two-fold: (i) they have to learn that differential phrases are not allowed in the adverbial comparative as shown in (5), (ii) they also have to learn that verbal predicates cannot be used alone in adverbial comparatives, as shown in (6). Verbal predicates have to be modified by manner adverbs through the morpheme

2.3 The differential comparative

Finally, the differential comparative, exemplified by the sentence in (7), consists of a subject 约翰 Yuēhàn 'John', a comparative marker 比 bǐ, a standard of comparison 玛丽 Mǎlì 'Mary', and a verbal predicate preceded by the morpheme 多 duō 'much' and an obligatory differential 两本书 liǎngběnshū 'two books'.1

(7) An example of the differential comparative

Subject	Comparative Marker	Standard of comparison	Predicate	Differential (required)	
约翰	比	玛丽	多读了	两本书	
Yuēhàn	bĭ	Mălì	duō dú-le	liăng běn shū	
John	than	Mary	much-read-ASP	two CL book	
'John read two more books than Mary did.'					

Unlike the adjectival comparative and the adverbial comparative, the differential comparative has a strict requirement on differentials; it requires the obligatory presence of a differential in the structure. Omitting a differential as in (8) will result in an ungrammatical sentence.

¹ In addition to the morpheme 多 duō 'much', 少 shǎo 'few' can also appear in front of a non-gradable verb to form a differential comparative, as shown below.

⁽i) 约翰 ŁŁ, 玛丽 少读了 一本书。 Yuēhàn bǐ Mălì shǎo dú-le vì běn shū. Iohn than Mary few read-ASP one Cl book 'John read one book fewer than Mary.'

(8) A differential is required in the differential comparative

*约翰 H. 玛丽 多读了。 *Yuēhàn hì Mălì duō-dú-le. than Mary much-read-ASP Iohn Intended: 'John read more than Mary did.'

The intended meaning of (8) can be expressed through the adverbial comparative in (9):

(9) 约翰 H. 玛丽 读得多。 Yuēhàn hĭ Mălì dú-de duō. Iohn than Mary read-DE much 'John read more than Mary did.'

As far as we know, the differential comparative is typically not formally introduced in the US college classroom (such as Liu 2002: 65-66). The lack of reference in textbooks can be one of the biggest challenges for English learners of Chinese when they learn the differential comparative. A linguistic reason, however, will be that the position of $\partial u\bar{\partial}$ 'much' now precedes the verbal predicate in the differential comparative unlike the adverbial comparative where 多 duō 'much' follows a verbal predicate.

Along with the structural differences between the adverbial and the differential comparatives, another major challenge for L1 English learners is that both of the two constructions in Chinese can be neutralized into nominal comparatives in English. For example, the comparatives in (10a) and (10b) are both nominal comparatives in English, as the comparative morpheme *more* modifies the noun books. However, in Chinese, (10a) corresponds to the adverbial comparative in (11a) and (10b) corresponds to the differential comparative in (11b).

(10) a. John read more books than Mary did. (nominal comparative) b. John read one more book than Mary did. (nominal comparative)

(11) a. 约翰 比 玛丽 读书 (adverbial comparative) Mălì Yuēhàn bĭ dú shū than Mary read book Iohn 读得多。 dú-de duō. read-DE much 'John read more books than Mary did.'

b. 约翰 比 玛丽 多读了 (differential comparative) Yuēhàn hí Mălì duō dú-le Iohn than Mary much read-ASP 两本书。 liǎng běn shū. two CL book 'John read 2 more books than Mary did.'

It has been observed that L2 learners encounter more difficulty learning constructions when two different forms in the target language correspond to a single form in the L1 (Stockwell et al. 1965 and subsequent studies). For example, English speakers who learn French have difficulty acquiring the gender-based article system because the masculine (le) and feminine (la) distinction is neutralized as the form the in English (cf. Carroll 1999). On a similar note, it is expected that English learners of Chinese would have more difficulty learning the syntax of the adverbial and the differential comparatives in Chinese than learning the adjectival comparative.

To summarize, in this section we have introduced the three types of comparatives in Chinese, which are summarized in the table in (12).

(12) A summary of examples of all three comparatives in Chinese

	Subject	Compara- tive marker	Standard of com- parison	Predicate	Differential
a. Adjectival	约翰	比	玛丽	高	三英寸。
Comparative	Yuēhàn	bĭ	Mălì	gāo.	(sān yīngcùn)
	John	than	Mary	tall	(three inches)
	'John is (3 inches) <u>taller than</u> Mary.'				
b. Adverbial	约翰	比	玛丽	读得多。	
Comparative	Yuēhàn	bĭ	Mălì	dú-de duō.	
	John	than	Mary	read-de much	
	'John read <u>more than</u> Mary.'				
c. Differential	约翰	比	玛丽	多读了	两本书。
Comparative	Yuēhàn	bĭ	Mălì	duō dú-le	liăng běn shū
	John	than	Mary	much read-ASP	two CL book
	'John read two <u>more</u> books <u>than</u> Mary did.'				

What these constructions have in common is that they all share a comparative marker bi 'than', a standard of comparison and an adjectival (or a verbal) predicate. However, they differ in the syntactic status of differentials in the structures. While differentials are optional in adjectival comparatives, they are required in differential comparatives, but are not allowed in adverbial comparatives. As such, comparatives in Chinese are significantly different from those in English, which creates non-trivial challenges from L2 learners. In the next section, we will describe the explorative classroom study we conducted to show learning patterns of comparatives by English learners of Chinese. Moreover, we will also discuss whether these challenges in acquiring Chinese comparatives are attested.

3 An exploratory classroom study: Learning of Chinese comparatives

Chinese comparatives do not show a one-to-one mapping with English comparatives as described in Section 2, which is hypothesized to create a challenge for English learners of Chinese. This section reports the results of an exploratory classroom study where English learners of Chinese learned the 3 types of Chinese comparatives. This learning of comparatives is discussed based on the results of a short quiz conducted at the end of each class after introducing the three comparative constructions of Chinese to the students.

We aim to address the following research questions. First, what are the patterns of the acquisition of Chinese comparatives by English learners? Second, how different would the paths be in acquiring the three different Chinese comparative constructions? Third, are there differences between heritage learners and non-heritage learners? An introduction of the research design of this study will be presented in Section 3.1. From Section 3.2, the three class meetings and the test formats will be described and analyzed.

3.1 Research design

We recruited learners from two elementary Chinese classes who were learning first semester Chinese at a college that is a part of the City University of New York system. The gender ratio among participants was 14 male to 10 female. When asked whether they had prior exposure to the Chinese language, 11 participants replied that they learned Chinese while they were growing up in a Chinese household.² The rest of the 13 learners were non-heritage learners of Chinese.

Prior to learning comparatives, learners acquired the basic word order of Chinese and were able to form simple sentences such as John drank milk. Learners also knew how to place adverbs in a Chinese sentence such as *John ran fast*.

The learning of comparatives was part of the regular curriculum. The schedule in the syllabus was followed without modification. The classes met 4 times a week for 55 minutes each time. Each class has two instructors who would alternate on different days. For example, one instructor will teach a class on Mondays and Wednesdays and another instructor will teach the same class on Tuesdays and Thursdays. The classes taught by the second author focused on grammar and the classes taught by an alternating instructor who focused on teaching vocabulary. To avoid possible effects of instructional styles and classroom dynamics with learners, only class interactions with the second author are used in this study.

For the purpose of the current study, all three types of Chinese comparatives are explicitly introduced to participants. Each participant (both heritage and non-heritage learners) learned the comparatives for the first time in a formal classroom setting. The adjectival comparative and the adverbial comparative were both provided in the textbook. The differential comparative, however, is absent from the textbook. Three classroom lessons were solely devoted to the teaching of Chinese comparatives. Participants also had homework assignments on comparatives. After each class meeting, a test was conducted as part of the review process for the class material for a given day. The following sections describe lessons, tests and their results.

3.2 The first lesson: Introduction of Chinese comparatives

The first lesson of comparatives introduced all 3 types of comparative sentences. At the beginning of the class, the instructor (the second author) prompted learners to see whether or not they can make a sentence about the length of the two objects in English. Learners created comparative sentences in English first. With this prompt, learners were then introduced to the basic structure of Chinese comparatives (subject - comparative marker - standard of comparison - predicate differential). After the basic structure was written on the blackboard, learners

² We acknowledge that there is always a question about how much heritage speakers have learned their language at home. Conducting a comprehensive examination of heritage learners' language abilities would have established a baseline, but such a large-scale examination lies beyond the scope of the current paper.

were introduced to the adjectival, the adverbial and the differential comparatives (in that order).

For these lectures, one of the words introduced was the comparative marker 比 bǐ 'than'. Other words reviewed in the lecture were some predicates such as 高 gāo 'tall', 读 dú 'to read', and classifier phrases for differentials such as 三英寸 san yīngcùn 'three inches' or 两本书 liǎng běn shū 'two books'. Learners were already exposed to other words used in comparative sentences, which we believe facilitated their learning of the comparatives without being distracted by the new vocabulary.

Before the test was provided, all examples on the blackboard were erased so that learners are not relying on information directly in front of them.

The first test: Identifying comparative constructions. The goal of the first test after the first lesson was to find whether learners were able to identify a correct type of comparative in Chinese based on specific contexts provided in English. Learners were asked to select one comparative form presented in multiple choice format with choices provided both in Chinese characters and pinyin. The two names (马 大为 *Mǎ Dàwéi* and 林娜 *Lín Nà*) in the examples were already familiar to learners. There were altogether three questions: one question designed for each type of comparative as shown in (13–15).

(13) Adjectival Comparative: Ma Dawei is 22 years old. Lin Na is 20 years old.³

a. Mă Dàwéi liăngsuì dà bǐ Lín Nà. (马大为两岁大比林娜。)

(马大为比林娜大两岁。) b. Mă Dàwéi bǐ Lín Nà dà liǎngsuì.

c. Mă Dàwéi bi Lín Nà liăngsuì dà. (马大为比林娜两岁大。)

(马大为比林娜多大两岁。) d. Mă Dàwéi bǐ Lín Nà duō dà liǎngsuì.

The context in (13) calls for the adjectival comparative, and the correct answer is (13b). The choice (13a) is incorrect because the order between the adjective 大 dà 'big' and 比 bǐ 'than' is reversed. The choice (13c) is incorrect because the differential 两岁 *liǎngsuì* 'two years' should be placed after the predicate 大 *dà* 'big'. In adjectival comparatives, the adverb 多 $du\bar{o}$ 'much' cannot be used before the adjective $\pm d\hat{a}$ 'big', which makes the last choice (13d) incorrect.

³ Tones were marked in the classroom test, so we mark examples from the tests with tones to faithfully reproduce the test format learners were exposed to.

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- (14) Adverbial Comparative: Ma Dawei learned Chinese for 4 years. Lin Na learned Chinese for 2 years.
 - (马大为学了汉语比林娜。) a. Mă Dàwéi xué-le Hànyǔ bǐ Lín Nà. b. Mă Dàwéi bǐ Lín Nà xué-le hànyǔ. (马大为比林娜学了汉语。)
 - (马大为比林娜学汉语学得久。) c. Mà Dàwéi bǐ Lín Nà xué hànyǔ xué de iiù.
 - d. Mă Dàwei bǐ LínNà duō xué-le Hànyǔ. (马大为比林娜多学了汉语。)

The context in (14) targets the adverbial comparative, and the correct answer is (14c). This type of comparative requires an adverb, so the choices (14a) and (14b) are incorrect due to the absence of an adverb. Although the adverb 多 duō 'much' is present in (14d), the choice is incorrect, because the object 汉语 hànyǔ 'Chinese' does not express the difference between what 马大为 *Mǎ Dàwéi* learned and what 林娜 *Lín Nà* learned, and hence is not a differential.

- (15) Differential Comparative: Ma Dawei ate one apple and one banana. Lin Na only ate one banana.
 - a. Mă Dàwéi bǐ Lín Nà duō chī-le yí (马大为比林娜多吃了一个苹果。) gè píngguŏ.
 - (马大为比林娜吃得多一个苹果。) b. Mă Dàwéi bǐ Lín Nà chī-de duō yí gè píngguǒ.
 - (马大为比林娜吃了一个苹果。) c. Mă Dàwéi bǐ Lín Nà chī-le yí gè píngguð.
 - (马大为比林娜吃了一个苹果多。) d. Mă Dàwéi bǐ Lín Nà chī-le yí gè píngguð duō.

The last context in (15) targets the differential comparative, and the correct answer is (15a). The choice (15b) is incorrect because the predicate is in an adverbial comparative form which is then followed by a differential. Note that differentials cannot occur in the adverbial comparative. The absence or the misplacement of the manner adverb 多 $du\bar{o}$ 'much' make the choices (15c) and (15d), respectively, incorrect.4

⁴ The differential comparative was presented the last because it is a construction that English grammar does not use to express comparative meanings.

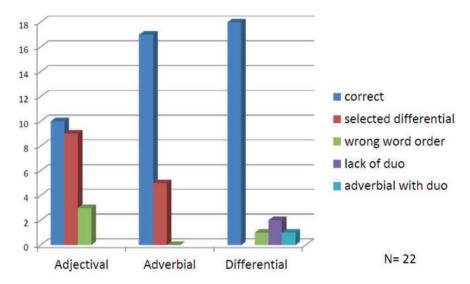


Fig. 1: Results of test 1, a multiple choice test after learning Chinese comparatives the first time.

Results of the first test. The responses of the learners are shown in Figure 1. In all the three categories, learners identified the correct choice more than incorrect choices, even though the exposure to the comparative constructions was relatively short. In fact, learners performed best in identifying the morphologically complex construction, the differential comparative (the presence of $du\bar{o}$ -de). The blue bar represents correct answers and the other bars show non-target answers with their characteristics.

Most learners correctly identified adverbial and differential comparatives. However, the learners seemed to have more difficulty identifying the adjectival comparative by choosing the answer where *duo* goes before the bare adjective. Choosing this particular answer suggests that the learners exhibit a transfer effect from English. Since English has an overt comparative marker *more* or *-er*, learners chose an answer, in which the adjective is modified by *duo* 'much'.

Heritage learners overall had a better rate of identifying different comparative constructions, possibly due to their prior exposure to comparative constructions. Among heritage learners, 5 out of 9 learners identified all comparatives correctly. In case of non-heritage learners, only 2 learners identified all comparatives correctly, and 6 of them correctly identified two Chinese comparative constructions.

3.3 The second lesson: Oral practice of comparative constructions

The second lesson took place 5 days after the first lesson. At the beginning of the class, learners reviewed the forms of the three types of comparatives from lesson 1. Learners then practiced to construct various types of comparative constructions in writing and in speaking.⁵ Before the test, all examples from the board were erased.

The second test: Building Chinese comparatives. After the second lesson, learners composed comparative constructions based on given contexts and key words. We will call this test free composition. The free composition task allows us to understand and diagnose types of constructions comfortable for the learners.

The first context shown in English as in (16a) was designed to call for an answer of an adjectival comparative sentence. To facilitate the composition process, learners also received two key words as in (16b). Given the context and keywords, there was only one possible solution (16c), in which the ages of the two people in context are compared.

(16) Adjectival comparative

- a. Context: Ma Dawei is 18 years old. Lin Na is 16 years old.
- b. Keywords: 两岁 liǎng suì '2 years old', 大 dà 'old'
- c. Solution: 马 大为 比林 娜 大两岁。 (Adjectival comparative) Mă Dàwéi bǐ Lín Nà dà liăngsuì.

'Ma Dawei is two years older than Lin Na.'

The second context in (17a) was provided so that learners compose comparative sentences with a verbal predicate 起床 qǐchuáng 'to get up'. The two keywords in (17b) also prompted learners to use verbal predicates, and as such, only the adverbial and the differential comparatives were possible solutions as shown in (17c). The composition was designed to test whether learners developed sensitivity to syntactic differences between the adverbial comparative (起床起得早 qǐchuáng qǐ-de zǎo 'got up earlier') and the differential comparative (早起了两个 小时 záoqǐ-le liǎng gè xiǎoshí 'got up two hours earlier'). In particular, the differential comparative requires a phrase marking the differential (for example, 两个

⁵ Our rationale for such in-class oral exercises is the comprehensible Output hypothesis (Swain and Lapkin 1995). Learners actively need to produce Output in the learning process in addition to a quality Input from a native speaker of Chinese.

小时 *liǎng gè xiǎoshí* '2 hours') but the adverbial comparative does not allow such measure phrases.

- (17) Adverbial comparative and differential comparative
 - a. Context: Ma Dawei woke up at 6:00 am. Lin Na woke up at 8:00 am.
 - b. Keywords: 起床 *qǐ chuáng* 'to wakeup', 早 *zǎo* 'early'
 - c. Solution: 马 大为 比 林 娜 起床 起得早。

(Adverbial comparative)

Mă Dáwéi bǐ Lín Nà gichuáng gi-de zǎo.

'Ma Dawei woke up earlier than Lin Na.'

马 大为 比林 娜 早起了 两个 小时。

(Differential comparative)

Mă Dáwéi bǐ Lín Nà zǎo qǐ-le liǎng gè xiǎoshí.

'Ma Dawei wokeup two hours earlier than Lin Na'

The last context in (18a) allows all three types of comparatives because a predicate can be a verb (看 kàn 'watch') or an adjective (多 duō 'many') depending on what is being compared. As in other contexts, only two keywords in (18b) were provided to the learners. The three possible solutions for the comparatives are shown in (18c).

- (18) Adjectival, adverbial and differential comparatives
 - a. Context: Ma Dawei watched three movies. Lin Na only watched one movie.
 - b. Keywords: 看 kàn 'watch', 电影 diànyǐng 'movies'
 - c. Solution: 马 大为 比 林 娜 多 看了 两

(Differential comparative)

Mă Dàwéi bì Lín Nà duō kàn-le liăng bù diànying.

'Ma Dawei watched two more movies than Lin Na.'

马 大为 比林 娜 看 电影 看得

(Adverbial comparative)

Mă Dàwéi bǐ Lín Nà kàn diànyǐng kàn-de duō.

'Ma Dawei watched more movies than Lin Na.'

比林 娜看 的电影多。 马 大为 看 的 电影

(Adjectival comparative)

Mă Dàwéi kàn de diànyĭng bǐ Lín Nà kàn de diànyĭng duō.

'Ma Dawei watched movies more than Lin Na.'

We expect that the oral exercise during the lesson helped learners to become familiar with this type of test. During the test, learners were allowed to compose only one of the relevant comparative constructions if there were more possibilities, as in (17) and (18).

Results. Overall, learners show preference in selecting one type of comparative construction each time. For the context in (16), learners either correctly produced an adjectival comparative or a mixed form in which they used *duo* 'much' in front of the adjectival predicate. The context in (17) had two composition possibilities: the adverbial comparative and/or the differential comparative. In this situation, learners mainly opted for the adverbial comparative. All three types of comparatives could have been composed from the context in (18).

The Figure 2 shows the overall results. Learners wrote in the differential comparative for the context (18), the adverbial comparative for (17) and the adjectival comparative for (16). We presented both correct answers and answers that were marked incorrect due to inaccuracy in parts not directly related to comparative constructions. The result of the differential comparative is in a red box, that of the adverbial comparative in a green box, and that of the adjectival comparative in a blue box.

Incorrect answers are answers that were not grammatical but had all the elements for the comparative construction. The leftmost bars show answers for the context in (18), the bars in the middle for the context in (17) and the bars on the left are for the context in (16). The answers for the differential comparative are

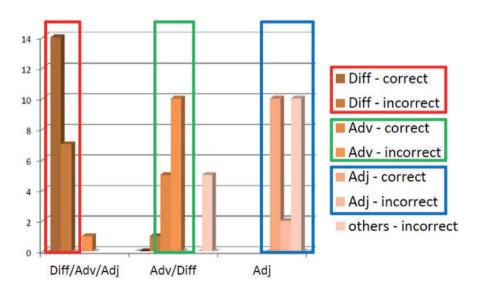


Fig. 2: Correct and incorrect answers of test 2 for each comparative type.

enclosed in a red box, for the adverbial comparative in a green box, and for the adjectival comparative in a blue box.

In Figure 2, 8 out of 22 learners (36%) used the adjectival comparative in the third question. However, for those who made mistakes, 8 out of 14 learners (57%) used duo when it should not have been used in the adjectival comparative. Among these learners, who overused the manner adverb 多 duō 'much', 7 out of 8 were non-heritage learners. Overall results of the second test, however, show no discernible difference between heritage learners and non-heritage learners. The distribution of correct answers and incorrect answers was almost equal. In general, both heritage learners and non-heritage learners were better in composing the adjective comparative than in composing the adverbial comparative and the differential comparative.

3.4 The third lesson: Comparatives in contexts

The third lesson was held 2 days after the second lesson (and a week after the first lesson). The main activities were reading texts from the textbook that contained comparative structures. The lecture time was also used for reviewing test 1 and test 2 and to provide feedback to the learners.

The third test: Translation. The final test in this exploratory study was designed to know whether learners can correctly match English translations into Chinese comparative constructions. If syntactic sensitivities were acquired, the learners would be able to use matching comparative constructions depending on the contexts and predicates.

Learners translated the following English sentences into Chinese using Chinese characters. Translation using pinyin was also accepted. The context in (19) triggers comparatives that have a verbal predicate 买 mǎi 'to buy'. Thus, either the adverbial comparative (19a) or the differential comparative (19b) were correct answers.

- (19) Context I: Ma Dawei bought two shirts. Lin Na only bought one shirt.
 - a. Adverbial
 - i. English: Ma Dawei bought more shirts than Lin Na did.
 - ii. Keywords: 买 mǎi 'to buy', 衬衫 chènshān 'shirts'
 - iii. Solution: 马 大为 比林 娜 买 衬衫 Mă Dàwéi bì Lín Nà măi chènshān măi-de duō.

b. Differential

- i. English: Ma Dawei bought one more shirt than Lin Na did.
- ii. Keywords: 多 duō 'much', 一件 yíjiàn 'one CL'
- iii. Solution: 马 大为 比林 娜 多 买了 一件 衬衫。 Mă Dàwéi bì Lín Nà duō măi-le yí jiàn chènshān.

The context in (20) was given to learners in order to find whether learners have acquired adjectival comparatives. The adjectival comparative optionally has differentials. More importantly, learners were expected to provide a Chinese equivalent of (20 a,i) with a correct word order.

(20) Context II: This shirt is 50 dollars. That shirt is 55 dollars

- a. Adjectival
 - i. English: This shirt is 5 dollars cheaper than that shirt.
 - ii. Keywords: 块钱 kuàiqián 'dollar', 这 zhè 'this', 那 nà 'that', 便宜 piányì 'cheap'
 - iii. Solution: 这 件 衬衫 比那件 衬衫 便宜 五块钱。 Zhè jiàn chènshān bi nà jiàn chènshān piányì wǔkuàiqián.

Results. Learners show the best result in adjectival comparative constructions. The correct comparative form was used by 17 out of 21 learners (81%) in response to the second context in (20). Learners also show competence in the acquisition of differential comparatives. 14 out of 21 learners (67%) used a correct form in translating the sentence in (19b), Adverbial comparatives (verb-DE adverb), however, remained a challenge for the learners. 13 out of 21 learners (62%) composed the comparative without de, which crucially distinguishes the adverbial comparative with other comparatives. In Figure 3, blue bars represent correct answers and red bars represent incorrect answers.

At first, the result shows that 81% of the learners composed a correct construction for the adjectival comparative, and 67% of the learners composed the correct differential comparative construction. However, the result in Figure 4 also suggests that only half of the learners (52%, 11 out of 21) were able to correctly compose both the differential comparative and the adjectival comparative.

As in the first test, heritage learners performed better than non-heritage learners in the third test. While all heritage learners correctly translated two or more comparative constructions, most non-heritage learners (except one who performed like heritage learners) were only able to translate less than two comparative constructions from provided contexts.

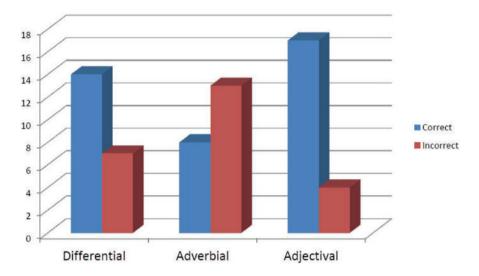


Fig. 3: Correct and incorrect answers when learners directly translated differential, adverbial and adjectival comparatives.

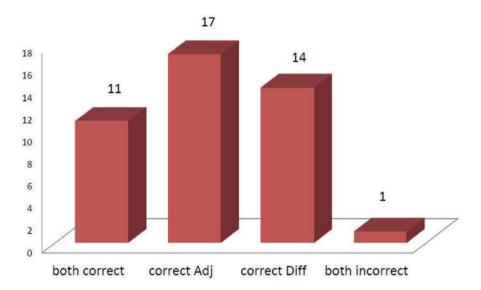


Fig. 4: Number of correct and incorrect answers in the production of differential comparative and adjectival comparative (N = 21)

3.5 Interim summary

The first research question introduced in the beginning of section 3 intended to highlight the patterns of the acquisition of Chinese comparatives by English learners. The overall results from the tests reported in this section show that learners were aware of the differences in the three comparatives from the first day of learning. The second research question looked to demonstrate whether there would be any difference in the acquisition paths of the three Chinese comparatives. Among the three comparatives, learners faced more difficulties in the acquisition of the adverbial comparative than the other two comparatives. In the beginning, learners had difficulty identifying the adjectival comparative, but this difficulty did not persist. During a short period of this exploratory study, learners gained more confidence in the adjectival comparative and the differential comparative, but not as much in the adverbial comparative. When learners had trouble with the adverbial comparative, they composed it as the differential comparative, which suggests that learners might not be fully aware of the nuanced differences in structure between the adverbial and the differential comparatives.

The third research question examined any differences between heritage learners and non-heritage learners. Heritage learners had advantage over their non-heritage peers in identifying comparative constructions (test 1) and translating comparative constructions from English to Chinese (test 3). Heritage learners, however, did not have advantage in a free composition task (test 2).

4 Discussion

Acquiring Chinese comparatives for L2 speakers involves learning the syntacticsemantic differences between three types of Chinese comparatives. As such, for each comparative type, there are unique challenges for L2 English learners. Learners should know that the adjectival predicate cannot be modified in the adjectival comparative. In the case of the adverbial comparative, learners need to acquire the verbal predicate structure (Verb-de duo) and the ban on differential expressions. The differential comparative, on the other hand, requires differentials, in addition to a verbal predicate structure (*duo-Verb-le*).

In Section 4.1, the less successful learning of the adverbial comparative is discussed in the framework of overgeneralization. Issues related to the learning of the adjectival comparative are mostly related to optionality, which is discussed in Section 4.2.

4.1 Difficulties with the adverbial comparative: Overgeneralization

Learning patterns from structures that are never used is more difficult than learning overt structures. Let's assume that our learners build an interlanguage grammar based on the structure of the differential comparative, in which differentials are required in comparatives. In our exploratory study, learners learned the differential comparative immediately after they learned the adverbial comparative. The positive evidence in the differential comparative would have triggered the construction of an interlanguage grammar regarding comparative constructions, in which the differentials are required, different from the requirement in the adverbial comparative. Thus, learners would have developed an interlanguage grammar of Chinese comparative constructions based on available evidence, and this particular grammar has a bias toward a requirement for the differentials. A previous learning of the adverbial comparative will not affect the constructed interlanguage grammar. Eventually, an explicit learning has to take place where learners are instructed about the disallowance of differentials in the adverbial comparative.

The particular challenge for English learners is that both the adverbial comparative and the differential comparative correspond to English comparatives built upon verbal predicates. So, we would predict that learners will over generate differentials in the adverbial comparative because of the interference from the knowledge of constructing the differential comparative.

As in many learning situations, the less successful learning of the adverbial comparative is not global to all the learners. Individual differences appear because during the relatively short span of learning Chinese comparatives, those who developed an interlanguage grammar, in which comparatives with verbal predicates require differentials, will show more errors in the production of the adverbial comparative whereas those who developed an interlanguage grammar sensitive to the difference between the adverbial comparative and the differential comparative, would display fewer errors.

4.2 Learning of the adjectival comparative and the differential comparative

This section tries to explain why L2 learners had low scores in identifying the adjective comparative in the first test. The major pattern in the result of the first test was that learners identified the differential comparative as the adjective comparative. From an English perspective, it is natural to think that learners would have thought that the adjectival comparative would require a modifying adverb duo 'much', which is comparable to more in English comparatives. This identification difficulty, we believe, stems from the difference in English adjectives and Chinese adjectives because Chinese bare adjectives have an inherent comparative meaning. The overuse of *duo* 'much' was also found in the free composition task.

Another difficult reason for separating the adjectival comparative from the other two types is that it takes time for learners to learn optional elements in a construction, such as differentials in the adjective comparative. In previous longitudinal studies on L2 learning, optionality has been examined in nonnative grammars (Sorace 2000, Zobl and Liceras 2005) or in near-native speakers (Sorace 2005). The confounding factors for learners are that differentials are optional in the adjectival comparative, and moreover that the adjective comparative has a different syntactic structure form the other two comparatives. Learners thought that the differential comparative is the adjectival comparative, which would be expected if learners were confounded by the optionality and then by the transfer of English comparatives, in which more or -er are required.

4.3 Heritage learners and non-heritage learners

Heritage learners of Chinese are students who have learned Chinese from home but not necessarily had formal (literacy) education in Chinese (cf. Xiao 2006). In our study, heritage learners outperform non-heritage learners in test 1 (identification of Chinese comparatives) and test 3 (translating comparative constructions based on contexts), but not in test 2 (composing a comparative construction from a context). These results affirm that heritage learners have advantage over non-heritage learners in learning a language due to prior exposures to the TL. This advantage, however, does not automatically extend to writing skills, similar to the case reported in Ke (1998). Hence, heritage learners did not perform better than non-heritage learners in test 2 in which they had to compose comparative sentences from given contexts.

Factors that result in better performance by heritage learners in test 1 and test 3 include heritage learners' exposure to Chinese outside of the classroom. Test 1 was conducted right after the initial exposure to Chinese comparatives in a formal setting. Even so, heritage learners should have been able to use their pre-existing knowledge of Chinese in identifying comparative constructions. We interpret the better performance in matching comparative constructions by heritage learners in test 3 also stems from their prior knowledge of Chinese. Test 3 provides contexts so that learners directly translate English comparatives to Chinese comparative

sentences. This may have been easier for heritage learners because they often translate between languages in chunks rather than in words.

5 Limitations

Our exploratory study reports a pattern in learning Chinese comparatives, but not without limitations. Conducting a classroom study is a challenge because students' learning must be the foremost goal among other things. As such, results in our study could only rely on tests that were conducted at the end of each class. With certain reservations, we believe that our methods help us to understand what learners do or do not know about Chinese comparatives especially during a time frame right after the learning has taken place.

In a future study, the acquisition patterns of comparative constructions between heritage versus non-heritage learners can be investigated further. Also, it would be pedagogically beneficial if we know whether changing the presentation order of the three comparative forms affects the learning patterns reported in this study.

6 Pedagogical implications

6.1 Order of presentation

The differential comparative was presented last during the first class meeting. In the test, learners did best in identifying the differential comparative. Moreover, they identified the differential comparative as an answer for the adverbial comparative and the adjectival comparative. This suggests that the order of presenting constructions can affect how learners behave during in-class quizzes.

In particular, our results suggest that for the introduction of various types of syntactic construction that have a similar meaning (i.e. comparative meaning), the order of exposure may draw different response patterns. Cognitively speaking, it is natural that a construction that is introduced last has the most advantage of becoming recognized by learners in the post-lesson in-class test (cf. López et al. 1998). This order effect is not surprising and suggests that results of an end-ofthe-class quiz should carefully be interpreted because responses by learners may in fact be dependent on the order of introduction in preceding classes rather than what learning has taken place.

6.2 Inclusion of all Chinese comparatives

This exploratory classroom study shows that college students can learn three different comparative constructions and we propose that all three comparatives should be included in college level textbooks. While this paper focused on the errors produced by the students, it is the case that about half of the participants acquired all three comparatives without much problem.

Teaching all comparatives, we believe, will build sensitivities to differences in English and Chinese syntax as well as semantics. Particularly, instructors could point out commonalities between English and Chinese comparatives and then proceed to differences between the two languages. Such sensitivities to the difference between the source language (English) and the target language (Chinese) will be beneficial to learners to become a nuanced L2 speaker of the Chinese language.

References

- Carroll, Susanne E. 1999. Input and SLA: Adults' Sensitivity to Different Sorts of Cues to French Gender. Language Learning 49:1, 37-92.
- Erlewine, Michael Yoshitaka. 2007. A new syntax and semantics for the Mandarin bicomparatives, University of Chicago.
- Jiang, Wenying, 2009. Acquisition of Word Order in Chinese as a Foreign Language. Berlin & New York: Mouton de Gruyter.
- Ke, Chuanren. 1998. Effects of language background on the learning of Chinese characters among foreign languages students. Foreign Language Annals 31:1, 91-100.
- Li, Charles N., and Thompson, Sandra Annear. 1981. Mandarin Chinese: A functional reference grammar. University of California Press.
- Li, Xiao. 2013. Degreless Comparatives: The Semantics of Differential Verbal Comparatives in Mandarin Chinese. Journal of Semantics doi: 10.1093/jos/fft013.
- Lin, Jo-wang. 2009. Chinese comparatives and their implicational parameters. Natural Language Semantics 17, 1-27.
- Liu, Chang. 2011. Error Analysis of Foreign Students' Comparative Sentences in Chineselearning (留学生比较句的习得与偏误), Liaoning Normal University.
- Liu, Cheng-Sheng Luther. 1996. A note on Chinese comparatives. Studies in the Linguistic Sciences 26:1-2, 217-235.
- Liu, Xun. 2002. New Practical Chinese Reader Vol. 2. Beijing: Beijing Language & Culture University Press.
- López, Francisco J., Shanks, David R., Almaraz, Julián, and Fernández, Pablo. 1998. Effects of trial order on contingency judgments: A comparison of associative and probabilistic contrast accounts. Journal of Experimental Psychology: Learning, Memory, & Cognition 24:3, 672-694.
- Sorace, Antonella. 2000. Syntactic optinality in non-native grammars. Second Language Research 16:2, 93-102.

- Sorace, Antonella. 2005. Selective optionality in language development. In Syntax and Variation. Reconciling the Biological and the Social, eds. L. Cornips and K.P. Corrigan, 55-80. Amsterdam: John Benjamins.
- Stockwell, Robert P., Bowen, J. Donald, and Martin, John Watson, 1965. The grammatical structures of English and Spanish. Chicago, IL: University of Chicago Press.
- Swain, Merrill, and Lapkin, S. 1995. Problems in Output and the Cognitive Processes They Generate: A Step Toward Language Learning. Applied Linguistics 16, 371–391.
- Tao, Ting. 2012. On Acquisition of Chinese Difference-Comparison as the Second Language (汉语作为第二语言差比句习得研究), Shanghai Normal University.
- Xiang, Ming. 2005. Some Topics in Comparative Constructions, Michigan State University. Xiang, Ming. 2007. A phrasal analysis of Chinese comparatives. In Proceedings of the 39th Annual Meeting of the Chicago Linguistic Society (Volume 39, Number 1 / 2003), eds. J. Cihlar, A. Franklin, D. Kaise and I. Kimbara, 739-754. Chicago, IL.
- Xiao, Yun. 2006. Heritage Learners in the Chinese Language Classroom: Home Background. Heritage Language Journal 4:1, 47-56.
- Xie, Baiyu. 2011. Study on Comparative Sentence Oriented Towards Chinese Teaching (Miàn Xiàng Duì Wài Hànyǔ Jiàoxué de BǐJiǎoJù YánJiū) [In Chinese], East China Normal University.
- Xu, Honghua. 2009. Wài Guó Xué Shēng Bǐ Jiǎo Jù Xí Dé Piān Wù Yuán Yīn Jí Duì Cè (外国学生比 较句习得偏误原因及对策). Science & Technology Information 19, 551-552.
- Zhou, Xiaobing, Zhu, Qizhi, and Deng, Xiaoning. 2007. Wai quo ren xue Han yu yu fa pian wu yan jiu (外国人学汉语语法偏误研究). Beijing, China: Beijing Language and Culture University Press.
- Zobl, Helmut, and Liceras, Juana M. 2005. Accounting for Optionality in Nonnative Grammars: Parametric Change in Diachrony and L2 Development as Instances of Internalized Diglossia. In Proceedings of the 7th Generative Approaches to Second Language Acquisition Conference (GASLA 2004), ed. Laurent Dekydtspotter et al., 283-291. Somerville, MA: Cascadilla Proceedings Project.

Bionotes

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