Revista Internacional de Estudios Asiáticos,
Vol. 2(1): 214-241, Enero-Junio 2023
DOI: https://doi.org/10.15517/riea.v2i3

Qualifying classifiers and their acquisition: a review of research and practices

Clasificadores calificativos y su adquisición: una revisión de la investigación y las prácticas

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Resumen: Los clasificadores chinos, también conocidos como palabras de medida, son particularmente difíciles de adquirir para los estudiantes de chino como segunda lengua (CSL). El objetivo de este artículo es el desarrollo de materiales didácticos específicos y estimular la investigación sobre la adquisición de clasificadores en CSL. En primer lugar, se ofrecen definiciones, distinguiendo entre los distintos tipos de clasificadores. A continuación, se ofrece una revisión de literatura existente sobre la adquisición de clasificadores numéricos en L1 y L2, junto con un examen de los materiales didácticos. El ensayo termina con recomendaciones para futuras investigaciones e innovación en la enseñanza de los clasificadores chinos.

Palabras clave: Clasificadores chinos; palabras de medida chinas; didáctica de los clasificadores.

Abstract: Chinese classifiers, also known as measure words, are particularly difficult to acquire for learners of Chinese as a second language (CSL). The purpose of this article is to encourage the development of dedicated teaching materials and stimulate much needed research on the acquisition of classifiers in CSL. The essay first provides definitions, distinguishing between different types of classifiers. Next, this paper offers a review of existing literature on L1 and L2 acquisition of numeral classifiers, along with an examination of teaching materials. The essay ends with recommendations for future research and innovation in the teaching of Chinese classifiers.

Keywords: chinese classifiers, chinese measure words, classifiers didactics.

Citar como: Glimois, L. (2023). Qualifying classifiers and their acquisition: a review of research and practices, 2(1), 211-238. DOI 10.15517/riea.v2i1.52212

Fecha de recepción: 13-09-2022 | **Fecha de aceptación:** 28-10-2022

Introduction

The purpose of this essay is to review the literature on numeral classifiers in Mandarin Chinese and their acquisition in order to provide directions for future research in grammar acquisition in Chinese as a second language (CSL), and inform teaching practices. This paper first defines classifiers and describes the complexity of the Chinese classifier system. The discussion then moves to an examination of studies on the acquisition of classifiers in CSL. Particular attention is given to those studies that focused on the processing of classifiers from input in CLS, because input processing, which consists in registering target linguistic features and connecting them to meaning during comprehension, is recognized across theoretical perspectives as the very first step towards second language acquisition[1]. The resulting state of the art concludes with recommendations for future research and innovation in the teaching of Chinese classifiers.

[1] For example, see the following studies. Nick C. Ellis, "Blocking and Learned Attention in Language Acquisition," In *CogSci 2007, Proceedings of the Twenty Ninth Cognitive Science Conference*, (Nashville, TN: 2007), 1-4. Susan M. Gass, "Consciousness in Contemporary Science," In I*nput, Interaction, and the Second Language Learner*, (Mahwah, NJ: Lawrence Erlbaum Associates, 1997), ix-xxiv. Stephen. D. Krashen, *The Input Hypothesis: Issues and Implications*, New York: Longman (1985). James Lantolf, *Socio-cultural Theory and Second Language Learning* (Oxford: Oxford University Press, 2000). Michael H. Long, "Native Speaker/Non-Native Speaker Conversation and the Negotiation of Comprehensible Input," *Applied Linguistics* 4, n. 2 (1983): 126-141. Brian Mac Whinney, "The Competition Model," In *Mechanisms of Language Acquisition*, edited by Brian MacWhinney, (Mahwah, NJ: Erlbaum, 1987), 249-308. Peter Robinson, "Attention and Memory During SLA," In *The Handbook of Second Language Acquisition* (Malden, MA: Blackwell Pub, 2003). Richard Schmidt, "The Role of Consciousness in Second Language Learning," *Applied Linguistics* 11, no. *Teaching and Learning*, edited by Eli Hinkel, (London: Routledge, 2005), 471-483. Merrill Swain, "The Output Hypothesis: Theory and Research," In *Handbook of Research in Second Language Teaching and* learning (London: Routledge, 2005), 471-483. Russell S. Tomlin, and Victor Villa, "Attention in Cognitive Science and Second Language Acquisition," *Studies in Second Language Acquisition* 16, no. 2 (1994): 183-203. Bill VanPatten, "Input Processing in Adult SLA," In *Theories in Second Language Acquisition: An Introduction* (New York: Routledge, 2015), 113-134.

Defining Chinese Classifiers

Classifiers are found in most East-Asian, South-Asian and Oceanian[2] languages. This linguistic category encompasses independent morphemes (lexemes or affixes) that must be inserted in noun-phrases containing numerals or determiners[3]. Their function is to indicate the class or quantity of the entity a noun refers to. Among the different subcategories of classifier languages, numeral classifier languages, like Cantonese and Mandarin Chinese, are the most prevalent ones.

A *numeral classifier*, also generically called "classifier", or "measure word" in Mandarin grammars and textbooks is an independent morpheme that "denotes some salient perceived or imputed characteristic of the entity to which the associated noun refers"[4]. As in most classifier languages, in Chinese, a numeral classifier is necessarily placed between a noun and a preceding determiner such as a number, a demonstrative, and certain quantifiers[5]. Although researchers have used different terminologies and definitions, there is a general agreement on the existence of two main categories of numeral classifiers. *Quantifying classifiers*, also called *mass classifiers* or *mensural classifiers*, have a quantifying function. They

[2] Alexandra Y. Aikhenvald, *Classifiers: A Typology of Noun Categorization Devices* (Oxford England: Oxford University Press, 2000).

[3] Peggy Li, Becky Huang, and Yaling Hsiao, "Learning That Classifiers Count: Mandarin-Speaking Children's Acquisition of Sortal and Mensural Classifiers," *Journal of East Asian Linguistics* 19, n. 3 (2010): 207-230. James Myers, "Rules vs. Analogy in Mandarin Classifier Selection," *Language and Linguistics Compass* 1, n. 2 (2000): 187-209.

[4] Keith Allan, "Classifiers," *Language* 53, n. 2 (1977): 285.

[5] For example, see the following studies. Francesca Del Gobbo, "Classifiers," In *The Handbook of Chinese Linguistics* (Hoboken: Wiley, 2014), 26-48. Charles N. Li, and Thompson, Sandra A. *Mandarin Chinese: A Functional Reference Grammar* (Berkeley: University of California Press, 1981).

include, for example, *mi* ("meter"); *dui* ("pair"), and *bei* ("cup")[6]. *Qualifying classifiers*, also called *count classifiers* or *sortal classifiers*, indicate the class a noun pertains to, depending on the semantic features it shares with others[7]. Such characteristics generally range among "humaneness", "animacy", "shape", "use", and "consistence"[8]. The present essay focuses on qualifying classifiers, because this linguistic category has no equivalent in English and other non-classifier languages, and this study is interested in how learners can make form-meaning connections when presented with a completely new linguistic phenomenon. Unless otherwise specified, the term "classifier" will, from now on, be used in the present dissertation as an abbreviation of qualifying classifiers.

For an illustration of a Chinese noun-phrase with a qualifying classifier, consider Example 1 and the description that follows.

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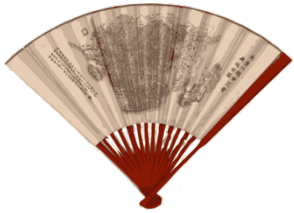
[6] For example, see the following studies. Aikhenvald, *Classifiers.* 2000. Lisa Lai-Shen Cheng, and Rint Sybesma, "Bare and not-so-Bare Nouns and the Structure of NP." *Linguistic Inquiry*, 30, n. 4 (1999): 509-542. Colette Craig, "Classifiers in a Functional Perspective," In *Layered Structure and Reference in Functional Perspective*, (Amsterdam: J. Benjamins, 1992), 277-301. Hu, *The Acquisition of Chinese Classifiers by Young Mandarin Speaking Children*, 1993. Li et al., "Learning that Classifiers Count," 2010. Rosmawati Rosmawati, "Investigating Second Language Learners' Usage of Mandarin Numeral Classifiers: A Case-Based Study." *Researching and Teaching Chinese as a Foreign Language* 1, (2015): 29-49. James Tai and Lianqing Wang, "A Semantic Study of the Classifier *tiao*," *Journal of the Chinese Language Teachers Association* 25, (1990): 35-56.

[7] Same as in previous footnote.

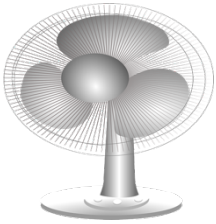
8 For example, see the following studies. Colette Craig, "Introduction," In *Noun Classes and Categorization* (Amsterdam/Philadelphia: John Benjamins Publishing Company, 1986), 5.

Example 1

Noun phrases in Chinese



yi ba shanzi
one "CL ba" fan
Number + CL + Noun
=



yi tai dianshan
one "CL tai" electric fan
Number + CL + Noun

As illustrated in Example 1, the English noun-phrase "a fan" (article + noun) in which fan designates a little object that is waved in a hand, translates into *yi ba shanzi* (number + classifier *ba* + noun) in Chinese. In this statement, *ba* indicates that the entity referred to by the noun can be held by hand and/or has a handle. Translating "one fan", when It refers to an electric device instead (*yi tai dianshan*), or else a ceiling fan requires the use of another classifier, *tai*, which is associated with electric and electronic devices, machines, and heavy objects.

The Complexity of the Chinese Classifier System

The Chinese language makes a very rich and complex use of classifiers. The inventory of classifiers ranges from a commonly agreed number of about 75[9] to several hundred according to dictionaries of Chinese classifi-

[9] Mary. S Erbaugh, "Taking Stock: The Development of Chinese Noun Classifiers Historically and in Young Children," In *Noun Classes and Categorization* (Amsterdam: J. Benjamins, 1986), 399-436.

ers such as those compiled by Chen, Che, Chen, and Zhang[10] and Jiao[11]. Although these generally collocate with nouns that share semantic properties with one another, classifier categories do not necessarily match conceptual categories (e.g., animals, plants, furniture, etc.). Therefore, many classifier-noun associations can seem arbitrary for non-native speakers, and sometimes also for native speakers[12]. For example, while most nouns referring to clothing are preceded by the classifier *jian* (piece, item), the noun *kuzi* (trousers), must be preceded by the classifier *tiao*, the classifier for objects and animals that are long; narrow, and flexible (e.g., rope, snake, fish). Similarly, several classifiers can apply to the same noun to emphasize different semantic properties of a referent. For instance, the noun *hua* (painting) can be preceded by *zhang*, which is used with flat objects, as well as collocate with *fu*, a classifier for works of art. In this example, the use of *fu* instead of *zhang* suggests either (1) that the referent is known as a piece of art, or (2) that the person using the classifier *fu* perceives or wants to present the painting as a work of art and not as a random painting. The Chinese classifier system also includes a generic classifier, *ge,* which can be used with many nouns and can sometimes—but not always, act as a substitute for a more specific numeral classifier[13]. Because of its versatility, children and second language (L2) learners tend

[10] Baocun Chen, Guicheng Chen, Hao Chenand, and Zaizhan Zhang, *Han yu liangci cidian* (Fuzhou: Fujian renmin chubanshe, 1988).

[11] Fan Jiao, *A Chinese-English Measure Words Dictionary* (Beijing: Sinolingua Press, 2001).

[12] For example, see the following studies. Ming Y. Gao and Barbara C. Malt, "Mental Representation and Cognitive Consequences of Chinese Individual Classifiers," *Language, Cognition and Neuroscience* 24, n. 7-8 (2009):1124-1179. Hong Zhang, "Numeral Classifiers in Mandarin Chinese," *Journal of East Asian Linguistics* 16, n. 1 (2007): 43-59.

[13] Erbaugh, "Taking Stock," 1986.

to ignore that there are limits to its use[14] and overgeneralize *ge* in their language production[15].

As should appear from the above description of the Chinese classifier system, the relationship between classifiers and nouns is quite complex; so complex that, according to Myers[16] "we'd need almost as many rules as there are lexical items" to explain the classifier system solely by relying on rules. Complexity notwithstanding, native speakers of Chinese appear to have an intuitive sense of which classifier is applicable to which noun, and which noun can be expected after a certain classifier is detected in speech.

How adult native speakers of Chinese process classifiers in real time, and how children acquire the complex classifier system in their native language are questions that have motivated a fair amount of research. Overall, findings on these issues indicate that, as they acquire their native language, native speakers of Chinese learn how to classify referents of the world and how to use information encoded in classifiers to make

[14] Kit-Ken Loke, "Is *ge* merely a General Classifier," *Journal of the Chinese Language Teachers Association* 29, no. 3 (1994): 35-50.

[15] For example, see the following studies. Hsing-Wu Chang, *Preschooler's Use of Classifiers in Mandarin Chinese*, (N.p.: Nation Taiwan University, 1988). Fuxi Fang, "An Experiment on the Use of Classifiers by 4- to 6-Year-olds," *Acta Psychologica Sinica* 17, n. 4 (1985): 384-392. Hu, *The Acquisition of Chinese Classifiers by Young Mandarin Speaking Children*, 1993. Kit-Ken Loke, "A Semantic Analysis of Young Children's Use of Mandarin Shape Classifiers," In *Child language development in Singapore and Malaysia* (Singapore: Singapore University Press: 1991), 98-116. Charlene Polio, "Non-Native Speakers' Use of Nominal Classifiers in Mandarin Chinese," *Journal of the Chinese Language Teachers Association* 28, n. 3 (1994): 51-66. Rosmawati, "Investigating Second Language Learners' Usage of Mandarin Numeral Classifiers," 2015. Houchang Ying, Guopeng Chen, Zhengguo Song, and Ying Guo, "4-7 sui ertong zhangwo liangci de tedian" (Characteristics of 4-to-7-year-olds in mastering classifiers), *Information On Psychological Sciences* 26, (1983): 24-32.

[16] Myers, "Rules vs. Analogy in Mandarin Classifier Selection," 2000.

predictions about acceptable following nouns[17]. Research also suggests that native speakers rely more, or less, on the distinct semantic features of the classifiers depending on the type of nouns available in the linguistic environment[18].

Unlike native speakers, L2 learners of Chinese come to learn classifiers with an understanding of the world and a way to describe it through language (i.e., their L1) that are already established. How can they learn to classify objects of the world and acquire the ability to use the information encoded in classifiers efficiently? The following section reviews research on these questions, with a focus on those studies that address the acquisition of classifiers operationalized as qualifying classifiers.

L2 Learners' Acquisition of Classifiers

The first study to shed light on how L2 learners acquire classifiers was conducted by Polio[19] who examined the use of classifiers by 21 native speakers of English and 21 native speakers of Japanese learning L2 Chi-

[17] For example, see the following studies. Fang, "An Experiment on the Use of Classifiers by 4- to 6-Year-olds," 1985. Falk Chen Huettig, Melissa Bowerman Jidong, and Asifa Majid, "Do Language-Specific Categories Shape Conceptual Processing? Mandarin Classifier Distinctions Influence Eye Gaze Behavior, but only During Linguistic Processing," *Journal of Cognition and Culture* 10, no. 1/2 (2010): 39-58.
Natalie Klein, Greg Carlson, Renjie Li, Florian Jaeger, and Michael Tanenhaus,"-Classifying and Massifying Incrementally in Chinese Language Comprehension," In *Count and Mass Across Languages Count and Mass Across Languages* (Amsterdam / Philadelphia: John Benjamins Publishing Company, 2012), 261-282.

[18] Qian Hu. *The Acquisition of Chinese Classifiers by Young Mandarin Speaking Children* (Boston: Boston University, 1993). For example, see the following studies. Hu, *The Acquisition of Chinese Classifiers by Young Mandarin Speaking Children*, 1993.

[19] Polio, "Non-Native Speakers' Use of Nominal Classifiers in Mandarin Chinese, 1994.

nese. Participants in this study first viewed a short movie that contained narratives of referents that were not visible on the screen. They were then asked to re-tell the story to a native speaker of Chinese. By producing sentences, participants would automatically need to use nouns, and hence classifiers. The examination of participants' use of classifiers in this elicitation task revealed that (1) participants were able to use a classifier in obligatory contexts; (2) they tended to overuse classifiers in general and overuse the general classifier *ge*; (3) they used more measure-words than classifiers; (4) they occasionally used unacceptable classifiers; (5) they were generally able to self-correct their mistakes. With the finding that learners of L2 Chinese were able—at least to some extent— to use classifiers, Polio brought a first insight on L2 learners' acquisition of Chinese classifiers: non-native speakers of Chinese can, and do acquire classifiers (Polio, 1994: 63). Further research was then needed to understand how Chinese learners come to acquire classifiers.

To this aim, Liang[20] investigated the acquisition of eight different classifiers by 29 speakers of English and 29 speakers of Korean at three different levels of proficiency in L2 Chinese (novice, intermediate, and advanced). The classifiers selected for this experiment denoted different shapes, sizes and textures. Ten objects made of clay were created to match these classifiers (eight target objects and two fillers). Participants were presented with these objects along with written noun-phrases following the model "number/classifier/clay (noun)" (e.g. "*yi tiao niantu*", "one CL tai clay"). Their task was to indicate the matching object for each phrase. Results showed that learners' accuracy in matching classifiers and objects was consistent with their general L2 proficiency level; learners at a more advanced level outperforming learners at a lower level. Thus, according to this finding, learners' ability to accurately use the information encoded in classifiers appears to develop along with their general proficiency in L2 Chinese.

[20] Neal Szu-Yen Liang, "The Acquisition of Chinese Shape Classifiers by L2 Adult Learners," In *Proceedings of the 20th North American Conference On Chinese Linguistics (Naccl-20): Dedicated to Professor Edwin G. Pulleyblank in Honor of His 85th Birthday*, Columbus, OH: East Asian Studies Center, Ohio State University, 2008, 309-326.

To better understand how learners of L2 Chinese build their knowledge of the classifier system, Gao[21] designed a study that would examine and compare the learning improvements and learning strategies used by 30 adult, native speakers of Swedish, and 30 Swedish-Chinese bilingual children. Participants in the adult group were Swedish-English bilinguals learning Chinese as their minor or major at a Swedish university, whose Chinese level was ranked at low, medium or high. Participants in the children group were 6 to 15 year-old native or near-native speakers of Chinese who received CLS lessons once a week as part of their education curriculum. Thirty different classifiers and matching nouns were selected for this experiment. Participants were tested three times at a four-week interval. After a warm-up phase, they were presented with visual stimuli representing objects and prompted to describe these stimuli using a classifier noun-phrase.

Overall, results from the analysis of participants' use of classifiers suggested that (1) the children group outperformed the adult group (with a few exceptions for the high-proficiency adults); (2) the adults' performance improved over the course of the two months, but slowly and moderately; (3) the adults' performance using the classifiers increased with their level of Chinese proficiency, but It was considered insufficient as compared to their vocabulary knowledge (participants would know nouns, but not know matching classifiers); (4) the classifiers used with the greatest degree of accuracy were those that are most frequently used in daily communication and classroom instruction. In addition, it appeared from the analysis of participants' responses during a follow-up interview that the children perceived classifiers as meaningful elements and paid attention to specific semantic features they encoded when using these. The adults, on the other hand, were found to rely on their previous knowledge of classifiers, conceptual categories of nouns (e.g., vegetables, animals, utensils, etc.) and rote-memorization. Gao adds that the adults seemed to be negatively affected in their acquisition of classifiers by their "lack of

[21] Helena Hong Gao, "A study of Swedish Speakers' Learning of Chinese Noun Classifiers," *Nordic Journal of Linguistics* 33, n. 2 (2010): 197-229.

cognitive understanding of the relation between nouns and classifiers and the overlapping boundaries of classifier categorizations"[22] (Gao, 2010: 216).

Based on a review of teaching materials, the researcher hypothesized that a possible factor in learners' moderate improvements and lack of understanding of the classifiers might lie in the fact that Chinese textbooks generally call classifiers "measure words" and fail to make distinctions between classifiers and actual measure words, which also exist in Swedish. Gao explains that mixing the two concepts may prevent learners from seeing classifiers as a grammatical category of its own, to which they should pay attention to. The researcher claims, in addition, that textbooks do not provide enough examples of classifier noun-associations for learners to be able to acquire classifiers[23].

Other two longitudinal studies examined L2 learners' acquisition of classifiers and related their findings to potential issues in Chinese teaching materials. Zhang and Liu[24] sought to trace learners' production of Chinese classifiers in essays written over the course of 15-to-30 weeks. Participants were international students enrolled in low-intermediate (n = 57) and high-intermediate (n = 30) Chinese courses in China. Quantitative and qualitative measures were used to analyze the fluency, diversity and accuracy of classifier use of the participants, revealing that an increased use of classifiers was not necessarily accompanied by diversity and accuracy. A focus on the production of four learners at the high-intermediate level also suggested that learners' developmental path and the frequency, diversity and accuracy of their use of the Chinese classifiers varied significantly. Considering the gap between classifier use and accuracy, the re-

[22] Helena Hong Gao, "A study of Swedish Speakers' Learning of Chinese Noun Classifiers," *Nordic Journal of Linguistics* 33, n. 2 (2010): 216.

[23] Helena Hong Gao, "A study of Swedish Speakers' Learning of Chinese Noun Classifiers," *Nordic Journal of Linguistics* 33, n. 2 (2010): 217-218.

[24] Jie Zhang, and Xiaofei Liu, "Variability in Chinese as a Foreign Language Learners' Development of the Chinese Numeral Classifier System," *Modern Language Journal* 97, (2013): 46-60.

searchers proposed that classifiers should be taught in their collocations with nouns (i.e., presenting new nouns and classifiers concomitantly). They also suggested that teachers should be aware that learners follow different acquisition paths, and address these with tailored assistance (Zhang and Liu, 2013: 58).

One of the most recent studies to investigate L2 learners' acquisition of classifiers was conducted by Rosmawati[25]. The researcher collected data from essays written by two learners of L2 Chinese across one semester in which they were taking intermediate-level Chinese language course in China. One of the participants was a native speaker of Italian. The other participant was a native speaker of Indonesian whose level of L2 Chinese was higher than the first participant. Consistent with the results obtained by Liang in a sentence comprehension task, and Gao's oral production task, the analysis of learners' written production suggested that proficiency level coincided with learners' accuracy in classifier use. Results also suggested that the least advanced speaker used more classifiers, made more errors, and made a higher overuse of the general classifier "*ge*".

To summarize, findings from the studies reviewed in this section reveal that CLS learners are able to use classifiers as early as the beginner level. Developing the ability to accurately interpret and produce classifiers, however, challenge. The acquisition of classifiers seems to be relatively slow and to match their overall level of Chinese proficiency. Although these studies do not directly address the effects of instruction on learners' acquisition of the classifiers, Gao's investigation of participant's learning strategies and Zhang and Liu's point to two main pedagogical issues that may negatively affect learners' acquisition of classifiers. First, pedagogical materials do not seem to emphasize the semantic features encoded in classifiers; the relationships between classifiers and nouns, and the difference between classifiers and measure words. Second, textbooks may not provide a sufficient amount of examples of classifier-noun associations (Gao, 2010: 229; Zhang and Liu, 2013:48).

[25] Rosmawati, "Investigating Second Language Learners' Usage of Mandarin Numeral Classifiers," 2015.

These considerations suggest that L2 learners might receive too little input on classifiers to be able to acquire these, and that they are rarely engaged in activities that direct their attention to classifiers and the meaning they carry. For a better understanding of these speculations, the next section provides some insights on how classifiers are presented in mainstream Chinese textbooks.

A Note on L2 instruction on Chinese Classifiers: Classifiers in textbooks

A quick look at mainstream Chinese textbooks appears to confirm the gaps in L2 instructional materials pointed by Gao and Zhang and Liu. Classifiers are generally presented in a glossary that accompanies a dialogue or a narrative, along with a translation or a brief description, and the disputable assignment to the "measure word" grammatical category. This is often the only time classifiers are somehow discussed. To be sure, most beginner textbooks do include, in the first few lessons, an explanation about the necessity of inserting a classifier in Chinese noun-phrases, and it is expected that learners use the classifiers appropriately when producing noun phrases. However, textbooks contain few activities, if any, that are dedicated to the teaching of classifiers and their relationship with nouns. The exposure learners receive on classifiers through textbooks is thus often limited to the dialogues and narratives in the textbook.

A Masters' thesis by Wang[26] and a dissertation by Liang[27] included a review of how classifiers are presented and distributed in the two volumes (Part 1 and Part 2, generally covered in two semesters) of *Integrated Chinese, Level 1, 2*[28] one of the most widely used series of Chinese textbooks

[26] Shaofang Wang, *A Textbook-Based Study on Measure Word Acquisition in Learners of Chinese As a Second Language*, Master's Thesis, Amherst: University of Massachusetts Amherst, 2016.

[27] Szu-Yen Liang, *The Acquisition of Chinese Nominal Classifier Systems by L2 Adult Learners*, Ph.D. dissertation, University of Texas at Arlington, 2009.

[28] Tao-chung Yao and Daozhong Yao, *Integrated Chinese. Simplified Character Edition. Level 1 Part 2* (Boston: Cheng & Tsui), 2005.

in US high schools and universities. Table 1 is an adaptation of a table Wang created to illustrate the number of times classifiers appear across all sections of the textbook (Text, Vocabulary, Grammar, and Language Practice). Table 1 differs from Wang's in that it only includes qualifying classifiers (the type of classifiers examined in the present study), and not quantifying classifiers or verb classifiers. An explanation of the use of each classifier was also added for the comfort of the reader.

Table 1

Representation of Classifiers in Integrated Chinese

Classifiers	Used for...	Times Presented
ba 把	objects held by hand	4
ben 本	volumes, bound prints	4
feng 封	Letters	1
ge 个	individual things and people	230
jia 家	groups of people, establishments	25
jian 件	clothing, subject matters	33
kou口	family members	6
pan 盘	flat objects	5
pian 片	objects that are flat and thin, slices	4
pian 篇	written pieces	5
tiao 条	long, flexible and narrow objects	14
wei 位	people (to be polite)	8
zhong 种	types of objects	11
zhang 张	objects with a flat surface, sheets	18
zhi 枝	Flowers	5

As Wang points out, most of these classifiers are commonly used, and serve the communicative needs of beginner learners. A look at the distribution of the classifiers reported in Wang also shows that they appear progressively throughout the lessons, with generally one to three classifiers being presented in the same lesson (to be covered in a week or two). However, it is striking in Table 1. that input on classifiers is very limited, besides for "*ge*", and some extent, "*jia*"; "*jian*"; "*tiao*" and "*zhang*". Knowing the importance of input in second language acquisition (SLA), one may wonder whether learners can be expected to make sufficient form-meaning connections to acquire classifiers that are presented only 1, 4 or 5 times, unless learners have access to other sources of input to derive the intake they need. Liang points out, furthermore, that with such a small number of examples, learners have few opportunities to distinguish between the use of classifiers that are defined the same way in the books' vocabulary entry. For example, "*zhang*" (objects with a flat surface, sheets), "*pan*" (flat objects), and *pian*" (objects that are flat and thin, slices) are all classifiers used with objects that are flat, however their use is not interchangeable. "*Zhang*" being presented 11 times; "*pan*", 4 times, and "*pian*", 5 times, it seems unlikely that learners will be able to distinguish between the different semantic values encoded in these three classifiers.

As far as explicit information is concerned, Lesson 2 offers an introduction to "measure words" (as in most textbooks, qualifying classifiers are not distinguished from quantifying classifiers) which states where they should be placed in a noun-phrases, and that they "often bear a relationship to the meaning of the given noun" (Yao and Yao, 2005: 58). This explanation is directly followed by examples of noun-phrases that include two of the classifiers included in the lesson, and an explanation of their meaning. This information could be an efficient way to direct students' attention to classifiers and help them understand their use and function. However, besides for "*ge*", and perhaps, "*jia*"; "*jian*"; "*tiao*" and "*zhang*", the textbook does not seem to provide learners with a sufficient number of opportunities to use this information to process classifiers in comprehensible input. In other words, the information provided may be an efficient way to direct students' attention to classifiers and help them understand their use and function. However, since learners are not pro-

vided with a sufficient number of opportunities to use this information to process input containing classifiers, there are reasons to believe that the effects of such explanation are limited.

After the introduction to classifiers in Lesson 2, as in most textbooks, the presentation of classifiers in *Integrated Chinese* is generally very brief and often limited to a few words in the vocabulary entry (ex. "*wei, a polite measure word for people",* 141*)*. On a few occasions, complementary information is provided in a "Language notes" section that follows the text. For example, a language note in Lesson 6 shows how using different classifiers ("*jie"* and "*men*") affects the interpretation of the following noun ("*ke*" or "lesson"), as in "*san jie ke"* ("three CL lesson") and in "*san men ke"* ("three CL lesson"): "the former is three class periods, and the latter is three courses" (p.). Such brief and concise information could be beneficial to learners by helping them understand the semantic value a classifier encodes, It provides opportunities-opportunities to use this information to process input that contains these classifiers.

While many production activities in the book provide necessary contexts for using classifiers, only one activity focuses directly on classifiers (in Lesson 2). This activity consists of a mechanical production task which asks learners to fill in a blank in a sentence using the classifier "*ge*". Input-oriented activities that would drive learners to connect classifiers to a function or meaning a noun-phrase, on the other hand, they are completely absent. The dialogues and narratives in each lesson are the only places where students could potentially make those form-meaning connections. In addition, there is no indication in the book that these texts must be attended to for communicative purposes, and it is not clear to us that they provide learners with a sufficient number of opportunities to detect classifiers and make form-meaning connections. One might thus wonder whether a textbook such as *Integrated Chinese* provides learners with the rich, meaning-bearing and communicative input they need to process and acquire classifiers.

In short, while *Integrated Chinese* appears to provide some input and explanation on classifiers, and to introduce classifiers in a progressive way, overall, these materials do not seem to provide learners with sufficient opportunities to process and acquire commonly used classifiers.

Considering the importance of receiving comprehensible input for second language acquisition to occur, it would be worth developing and evaluating instructional materials that would offer learners more exposure to classifiers and direct their attention to its syntactic and semantic value via input-oriented activities. For instance, the use of authentic documents including a large number of exemplars of the classifiers—a technique also known as "input flood"-could increase the likelihood that classifiers would be detected (and hence, possibly processed and acquired) while learners are engaged in comprehension activities[29].

Another pedagogical intervention that could support the acquisition of classifiers is Processing instruction[30], a research-led approach to grammar teaching that accounts for the crucial role of input in SLA, as well as recognized the necessity that learners make appropriate form-meaning connections from input to develop their mental representation of language. With processing instruction, learners would receive an explanation

[29] For an overview of research on input flood, see the following studies. Martha Trahey, and Lydia White, "Positive Evidence and Preemption in the Second Language Classroom," *Studies in Second Language Acquisition* 15, no. 2 (1993): 181. Nina Spada, and Pasty M. Lightbown, "Instruction, First Language Influence, and Developmental Readiness in Second Language Acquisition," *The Modern Language Journal* 83, n. 1 (2008): 1-22. Todd Hernández, "Re-Examining the Role of Explicit Instruction and Input Flood On the Acquisition of Spanish Discourse Markers," *Language Teaching Research* 15, n. 2 (2011): 159-182. Hayo Reinders, and Rod Ellis, "The Effects of Two Types of Input on Intake and the Acquisition of Implicit and Explicit Knowledge," In *Implicit and Explicit Knowledge in Second Language Learning, Testing and Teaching* (Buffalo: Multilingual Matters, 2009), 282-302. Aline Godfroid, "The Effects of Implicit Instruction on Implicit and Explicit Knowledge Development," *Studies in Second Language Acquisition* 38, n. 2 (2016): 177-215.

[30] For examples, see the following studies. Bill VanPatten and Theresa Cadierno. Explicit instruction and input processing. *Studies in Second Language Acquisition*, 15(1993, 2): 225-243.Wynne Wong, "The Nature of Processing Instruction." In *Processing Instruction: Theory, Research, and Commentary*, (Mahwah, NJ: Erlbaum, 2004), 33-64.

about the meaning and use of the classifiers, along with a warning against the tendency to skip over classifiers as they attempt to interpret input. Learners would then, most importantly, receive ample opportunities to detect and make form-meaning connections from classifiers in meaningful, structured input activities: input-oriented activities that push learners to process a target form to encode meaning[31].

To date, only three studies have, to our knowledge, examined the effects of instruction on the learners' acquisition of classifiers. This research is summarized in the next section.

The Effects of Instruction on Classifier Acquisition

Li[32] examined the effects of type of feedback, L2 proficiency level, working memory and the nature of a target form on learners' acquisition of Chinese classifiers and the perfective *le*. Participants were 78 native speakers of English and Korean a either a lower or a higher level of proficiency in L2 Chinese. They were assigned to one of three pedagogical conditions: a control group; a recast group, or an explicit feedback group. Recast was operationalized as the reformulation of an erroneous L2 utterance. Explicit feedback consisted in providing learners with the correct form, followed by a rule explanation. The control group did not receive feedback on their use of the target forms.

Pedagogical treatment included two tasks for each target structure, performed in interaction with a native speaker of Chinese. The first task on classifiers engaged learners to ask questions to the native speaker in

[31] For specific guidelines for the creation of structured input activities, see the following studies. James Lee and Bill Van Patten, *Making Communicative Language Teaching Happen*, Boston: McGraw-Hill, 2003. Wynne Wong, *Input Enhancement: from Theory and Research to the Classroom*, Boston: McGraw-Hill, 2005.

[32] Shaofeng Li, "The Interface Between Feedback Type, L2 Proficiency, and the Nature of the Linguistic Target," *Language Teaching Research* 18, (2014): 373-396.

order to identify, out of a set of three pictures, the picture that did not belong. The second task asked learners to describe a set of seven pictures to the researcher. Participants were prompted to use the classifiers in obligatory contexts. For the perfective *le*, learners first watched a video and were asked to retell the story, using a list of clues that provided obligatory contexts for the use of *le.* Next, they took part in an oral interview. Assessment measures included a reading-span task; an untimed grammaticality judgment test, and an elicited imitation test asking participants to listen to some statements; decide whether or not this statement was true, and repeat it in correct Chinese.

The results of the untimed grammaticality judgment test and the elicited imitation test revealed that, for both target structures, explicit feedback yielded greater improvements than recasts for the lower-level learners, but the two types of feedback were equally effective in the higher-level group. Results also showed that, while participants in the recast group always outperformed learners in the control group, the effects of recasts were much stronger for the learning of classifiers. As an explanation for this difference, the researcher hypothesized that the recast on classifiers were more likely to be noticed, because classifiers are more salient, less redundant in a sentence than the perfective *le.* Li added that classifiers require only minimal instruction while the perfective *le* involves lengthy rule explanation, making classifiers more amenable to instruction under the form of recasts (Li 2014: 391–392). Results from the reading span task were somewhat inconclusive.

As far as instruction on classifiers is concerned, what can be retained from these findings is that somehow directing learners' attention to classifiers can lead to improvements for the recognition and production of correct uses of the classifiers.

The second available study on the effects of instruction on L2 learners' acquisition of Chinese classifiers was conducted in the context of a replication study on order-of-learning effects[33]. Paul and Grüter[34] investigated

[33] Inbal Arnon, and Michael Ramscar, "Granularity and the Acquisition of Grammatical Gender: How Order-of-acquisition Affects What Gets Learned," *Cognition* 122, n. 3 (2012): 292-305.

[34] Jing Z. Paul, and Theres Grüter, "Blocking Effects in the Learning of Chinese Classifiers," *Language Learning* 66, n. 4 (2016): 972-999.

whether presenting nouns first in isolation, and then in a classifier phrase, or else presenting nouns in the reverse order, would affect L2 learners' acquisition of classifiers. One experiment was conducted with 24 novice learners of Chinese (i.e., they had never been exposed to Chinese), and another one with 24 learners who had five to seven weeks of exposure to Chinese. The two classifiers selected for this experiment were *ba* (associated with objects that have handle and/or can be held by hand) and *gen* (associated with objects that are rigid and long-shape). Fourteen nouns were used to match each classifier. Participants in both experiments completed two blocks of learning activities in a different order. In the noun block, they were presented with images and audio recordings of the matching nouns (i.e., noun block). In the sentence block, they saw images of an object and a boy or girl and heard corresponding sentences; each containing a classifier (i.e., sentence block). Participants were asked to repeat the noun or sentence they had heard. Each block exposed learners to a total of 70 items (with each objected named 5 times). The testing phase started immediately after the learning phase. It consisted of a forced-choice task asking participants to choose, out of two sentences they heard, which one was the best description of an image they were presented with. The sets of two sentences used to test learners' acquisition of the classifiers only differed by the classifier.

Results indicated that all learners made learning improvements, and the novice learners performed better when they had been exposed to sentences before nouns. Learners with 5 to 7 weeks of classroom exposure to Chinese, on the other hand, did not display any order-of-learning effects, suggesting that their limited knowledge of Chinese eliminated the benefits of being exposed to sentences first. Paul and Grüter called for caution in making pedagogical implications from these results and suggested that, while exposing L2 learners to larger units first may direct learners' attention to patterns in the input, this effect may soon be neutralized over time. The authors also called for further research involving the manipulation of input.

Responding to this call, a study by Glimois[35] investigated how fast and accurately beginner learners of Chinese would process the classifiers *ba* ("held by hand") and *tai* ("heavy, mechanical, electronic"), when taught with input-oriented techniques such as Input Flood and Processing Instruction. A total of 319 English speakers took part in this experiment. They were unfamiliar with Chinese and any other classifier language. They were divided into four instructional groups, each of which was assigned to a different combination of structured input, input flood, and explicit information. Participants' learning rate was assessed as they were completing pedagogical activities, counting the number of sentences containing *ba* or *tai* that they misinterpreted, before they were able to start linking the classifiers to the meaning they convey. Overall improvements were measured comparing learners' performances interpreting sentences with *ba* and *tai* before, and after they completed the pedagogical treatment. Results revealed that structured input was sufficient to yield significant learning improvements, and combining explicit information with structured input yields accelerated learning rates and higher overall learning performances. The combination of input flood and structured input did not lead to better results than structured input alone, probably because learners had received a sufficient amount of exposure to the classifiers with the structured input activities. These findings suggest that pedagogical interventions focused on helping learners make form-meaning connections can be useful to support the acquisition of complex linguistic features such as classifiers in CLS.

Conclusion and Directions for Future Research on the Acquisition of Classifiers in CLS

Research on the acquisition of classifiers in CLS appears to be still in the early stages, leaving open the questions of how learners come to process classifiers in real time and how instruction can best support them in this task. Yet, studies have compared various participant populations, and

[35] Laurene Glimois, The Effects of Input Flood, Structured Input, Explicit Information, and Language Background On Beginner Learners' Acquisition of a Target Structure in Mandarin Chinese, Unpublished PhD doctoral dissertation, Ohio State University, Columbus, Ohio, 2019.

used eclectic methodologies to measure either learners' ability to use, understand, or judge of the grammaticality of sentences including classifier, providing useful insights for further research.

First, research suggests that adult speakers of a non-classifier language can learn classifiers. Second, L2 learners' ability to use and process classifiers appears to develop over time, as L2 proficiency increases, although learners' acquisition of classifiers seems to follow a slower pattern than other aspects of the Chinese language. Thirdly, the three studies that have explored a role for instruction in the acquisition of classifiers in CSL suggest a beneficial role for input. Fourth, researchers have suggested that the lack of input on classifiers in instructional materials, and the fact that learners appear to be unaware of the semantic relationship between classifiers and nouns may act as some of the factors that moderate learners' ability to acquire Chinese classifiers. The review of the presentation of classifiers in a mainstream textbook confirms that input on classifiers is very limited, and the explicit information provided may not be sufficient to drive learners' attention to the nature of classifier-noun relationships. It would thus be advisable to explore ways to include more input-oriented activities in the teaching of Chinese classifiers. Structured input and input flood, in particular, should receive more attention in this regard. Meanwhile, research is needed that will further investigate how second language instruction might facilitate the processing of Chinese classifiers and thereby enhance their acquisition. The use of tools able to capture the moment-by-moment processing of classifiers such as eye-tracking and self-paced reading, for instance, along with data from sentence interpretation and sentence production, would be particularly useful in this regard.

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