

*A critical review of research on strategies
in learning Chinese as both a second
and foreign language*

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Abstract

This article critically reviews strategy research on learning Chinese both as a second and foreign language. Through a careful examination of major data bases in both the Chinese and English languages, the article summarizes research in the field and the principal research methods used in the studies reviewed. Moreover, key limitations in research designs, inconsistencies in reported findings, inappropriate use of research methods, and weaknesses in both Chinese- and English-language publications are discussed. The article concludes by calling for future research paying more attention to current language learning strategy theories and practices.

Keywords: strategy research, learning Chinese, second language, foreign language

Over the last three decades, the number of Chinese language learners as a second/foreign language (CSL/CFL) has dramatically increased. According to the official news release by Hanban,¹ the total estimated number of learners

¹ Retrieved from <http://www.hanban.edu.cn>

of Chinese as a non-native language had reached 40 million as of 2011. A language enrollment survey conducted in the United States by the Modern Language Association (Furman, Goldberg, & Lusin, 2010) indicated a total of 60,976 learners, constituting an increase of over 18% compared with statistics in 2006. Commensurate with this increase in students of the language, empirical research on CSL/CFL is expanding as well, with an increasing number of publications in journals, books, dissertations, and conference proceedings. Many of the works attempt to describe practices in CSL/CFL teaching and learning and the variables that are involved, consistent with the language learning strategy (LLS) research already available for a host of other languages. Hence, now is a propitious moment to conduct a critical review of strategy research in this field, paying special attention to strategies that have proven effective for CSL/CFL learners in their efforts to master the language. In addition, it is a good time to look to updating the guiding theories about LLS that have been adopted by CSL/CFL researchers.

It would be an understatement to say that LLSs have been defined in numerous ways over the years. Our own working definition would be as follows: “[t]houghts and actions, consciously chosen and operationalized by language learners, to assist them in carrying out a multiplicity of tasks from the very onset of learning to the most advanced levels of target-language performance” (Cohen, 2011, p. 7). Dörnyei (2009: 183) minimizes the value of looking at LLSs altogether since what learners do is better viewed as “idiosyncratic self-regulated behavior, and a particular learning behavior can be strategic for one learner and non-strategic for another.” Similarly, Oxford (2011) embraces a self-regulation model for L2 learning, but unlike Dörnyei’s approach, in Oxford’s model, learners actively and constructively use strategies to manage their own learning. So, a compromise position might be to include self-regulation as perhaps an umbrella notion when referring to language learners and to also include the strategies that they use for both learning and performing in an L2. A recent article by Rose (2012), however, argues that Dörnyei’s reconceptualization might be a matter of throwing the baby out with the bathwater, in that it throws out a problematic taxonomy and replaces it with another one, which is also problematic since it includes the same definitional fuzziness for which previous taxonomies have been criticized. So, for the purposes of this review of CSL/CFL strategies, we will stick to the more “traditional” approach to viewing LLSs, without involving the concept of self-regulation.

The article has as its main goal to ascertain the directions that current CSL/CFL strategy research has taken and to identify major issues through a review of academic publications both in Chinese and English. Studies were identified through electronic searches of major databases in the field, for example,

the China National Knowledge Infrastructure (CNKI),² Science Direct, JSTOR, and ERIC. In addition to major journals and MA and doctoral dissertations in China, which are all included in CNKI, core journals in English that were not found in those databases – such as the *Journal of the Chinese Language Teachers Association (JCLTA)*, monographs published by the Chinese Language Teachers Association³ and Digital Dissertations in the United States – were also investigated in this article. Notwithstanding the fact that publications in other parts of the world are missing from this review, the studies included provide numerous insights regarding research and practices in the CSL/CFL field.

This article starts with a general description of strategy research in CSL/CFL, then focuses on areas of keen interest to CSL/CFL strategy researchers (namely, Chinese character learning, reading, listening, speaking, and other strategy-related areas), looks at research methods used in strategy studies in CSL/CFL, highlights key issues arising from this review of existing literature, and then closes with implications and conclusions.

History of Strategy Research in CSL/CFL

General Description of Strategy Research in CSL/CFL

Table 1 CSL/CFL strategy research in journals and unpublished dissertations

Data source	Journal			Dissertation		
	1980s	1990s	2000s	1980s	1990s	2000s
Chinese CNKI		4	31			26
English JSTOR, Science Direct, <i>JCLTA</i> , Digital Dissertations (United States)	1	5	8	2	6	4

Strategy research in CSL/CFL dates back to the late 1980s. As can be seen from Table 1, only 87 publications on CSL/CFL strategy research had appeared as of 2011, with 49 journal articles and 37 dissertations. It is interesting to compare publications by date and language. First, relevant research has gone through three chronological stages: 1980-89 (phase 1), 1990-99 (phase 2), and the 21st century (phase 3). In phase 1, publications in Chinese were absent and there appeared to be only one journal article (Hayes, 1988) and two doctoral dissertations written in English (Everson, 1986; Yu, 1987). Hayes (1988) examined Chi-

² China National Knowledge Infrastructure, also known as CNKI, is one of the world's largest full-text databases and the most comprehensive resource for Chinese academic journals. It is available at <http://www.cnki.net>.

³ The Chinese Language Teachers Association, founded in 1962, is the oldest Chinese language association in the United States.

nese character learning strategies, Yu (1987) worked on mnemonic strategies used by English-speaking learners of Chinese, and Everson (1986) examined English-speaking learners' Chinese reading strategies.

In phase 2, there were slightly more publications, including four in Chinese-language journals (Luo, 1998; Wu, 1999; Xu, 1999; Yang, 1998), five in English-language journals (Everson, 1998; Everson & Ke, 1997; Ke, 1998; McGinnis, 1999; Sergent & Everson, 1992), and six doctoral dissertations (Chen, 1995; Good, 1998; Lee, 1998; Li, 1998; Sergent, 1990; Zhou, 1999). During this period, Chinese-language publications seemed to be random: Yang (1998) investigated CSL learners' strategy use and Chinese achievement; Luo (1998) focused on CSL learners' avoidance strategies in their efforts to learn Chinese; Xu (1999) attempted to identify types of strategy use from cognitive and psychological perspectives; and Wu (1999) described how Chinese language learning strategies could inform writing instruction. In contrast, English publications tended to focus on strategies for Chinese character learning, except for a few doctoral dissertations which dealt with general strategies (Chen, 1995), reading strategies (Lee, 1998; Li, 1998), writing strategies (Good, 1998), or specific types of strategies, such as processing strategies in short-term memory (Zhou, 1999).

In phase 3, the number of strategy studies written in Chinese increased markedly and for the first time surpassed the number of publications in English. In addition, strategy research in Chinese publications covered major aspects of Chinese language learning, for example, character learning (Jiang & Zhao, 2001; Qiang, 2005; Yan, 2004; Zhao & Jiang, 2002), reading (Qian, 2006), speaking (Li, 2007; Lu, 2005; Na, 2007; Wu, 2008), and listening (Bai, 2007; Di, 2007; Zhang, 2007; Zhou, 2004). In English publications, strategies for Chinese character learning appear to be the main focus of research, both in journals (Kuo & Hooper, 2004; Shen, 2005; 2010; Yin, 2003) and in doctoral dissertations (Arrow, 2004; Fu, 2005; Kuo, 2000). At the same time, reading strategies (Chang, Lan, Chang, & Sung, 2010; Thompson, 2008) and factors related to strategy use (Sung, 2009; Wang, Spencer, & Xing, 2009) have also been prime topics for research.

Descriptions of Strategies Identified by CSL/CFL Researchers

This review found that researchers have described CSL/CFL strategies in two ways, either through empirical research aimed at describing the strategies observed to be used by learners of Chinese (see Table 2) or according to the terminology popularized by second language acquisition (SLA) theorists or by LLS experts working with other (mostly Western) languages (see Table 3).

Table 2 Strategy types defined by CSL/CFL researchers

Strategy	Descriptions	Researcher
Phonological strategies	Using pronunciation and the tone of a character	Hayes (1988, p. 188)
Graphic strategies	Relying on the visual graphics, the physical resemblance of a character	
Semantic strategies	Using its meaning to understand a character	Everson & Ke (1997, p. 13)
Character networking strategies	Guessing unknown combinations by either knowing what one of the characters means separately, or by knowing other combinations where the individual characters occur	
Unit identification strategies	Text-based or low-level processing strategies, including previewing, scanning for unfamiliar words, marking the text, using textual resources, using pinyin and/or the English equivalent, applying linguistic knowledge, or using context	Lee (1998, p. 195)
Unit assemblage strategies	Meaning-integration or higher-level processing strategies, including paraphrasing, using background knowledge and personal experience, anticipating, hypothesizing, formulating questions, identifying the main ideas, taking notes, or making a summary	
Graphic and substitution strategies	Partial graphic cues, radicals and substitution with existing characters in spoken language	Li (1998, p. 141)
Syntactic strategies	Finding out sentence components and word order	
Slowing down, re-reading, skipping strategies	Comprehending unknown words by reducing reading speed, repeated reading silently/aloud (to cultivate meaning from sound), or ignoring the unknown words.	
Recall-based character writing	Memory strategies that combine reading, writing, thinking, and revision of characters	Liu & Jiang (2003, p. 61)
Rote character learning	Repeated copying of characters	
Elaborate rehearsal strategies	Self-generated meaningful rehearsal of characters, resulting in deeper processing in memory	Shen (2004, p. 168)
Non-elaborate rehearsal strategies	Rote and repetitive rehearsal of characters, resulting in shallow processing in memory	
Orthographic knowledge-based cognitive strategies	Making use of the three elements of radical knowledge (graphemics, semantics, and phonetics) as cues to encoding the characters	Shen (2005, p. 61)

Table 2 shows descriptions of strategy types provided by researchers who conducted research in a CSL/CFL environment. Notably, naming of strategies is closely linked with two obvious research foci: Chinese character learning and reading. Different from alphabetic-based languages, a Chinese character consists of sound (phonetics), shape (graphics), and meaning, and lacks an obvious sound-script correspondence. Early strategy research either associated strategy descriptions with these three aspects (e.g., Hayes, 1988; Li, 1998; Liu & Jiang, 2003; Shen, 2005), or reported whatever behaviors were identified

in studies, such as observable behaviors in Ke's (1998) study or invisible but articulated cognitive processes by participants in studies by Everson and Ke (1997) and by Shen (2004). At the same time, attention to Chinese reading also yielded descriptions of certain strategy types. For example, learners' specific micro- and macro-level strategies for dealing with actual problems in reading Chinese were documented (Li, 1998).

These labels of strategy categories presented by CSL/CFL researchers are not without problems. When Shi (2005) referred to *orthographic knowledge-based strategies*, she indeed meant phonological, graphic, and semantic strategies as first indicated by Hayes (1988). Similarly, low-level and higher-level processing strategies in Lee's (1998) study were the same as those used in Shen's (2004) study, except that Lee focused on reading strategies in general and Shen was looking specifically at character memorization. In fact, due to a paucity of research literature in this area, it is difficult to determine the extent to which the strategy types displayed in Table 2 constitute an established set of terms that future CSL/CFL researchers would employ.

In contrast to the work which has focused on strategies emerging from CSL/CFL studies, the bulk of the studies have relied for their strategy terminology on the work of SLA theorists and that of LLS experts. As illustrated by Table 3, the most frequently-cited scholars are Bialystok (1978), Cohen (1998), Oxford (1990), O'Malley and Chamot (1990), Rubin (1975; 1981), and Wenden (1987).

Table 3 Strategy terms based on the work of SLA theorists and LLS experts

Strategy	Definition	Researchers quoted	CSL/CFL researchers
Formal practice	Referring to grammar books and dictionaries to help acquire the knowledge	Bialystok (1978, p. 71)	Yang (1998)
Functional practice	Using the language in communicative situations		
Cognitive	Using steps or operations in learning or problem-solving requiring direct analysis, transformation, or synthesis of learning materials	Rubin (1981, p. 119)	Xu (1999)
Direct	Involving direct manipulation of the target language	Oxford (1990, p. 37)	Jiang (2000, p. 63)
Indirect	Supporting and managing learning without direct manipulation of language		
Metacognitive	Planning for learning, thinking about the learning process as it is taking place, monitoring of comprehension and production, and evaluating learning after an activity is completed	O'Malley & Chamot (1990, p. 8)	Yan (2004, p. 6)
Cognitive	Focusing on specific learning tasks and more direct manipulation of the learning material itself		Lu (2005, p. 15)

Socioaffective	Using social-mediated activities and interaction with others		
Language learning	Identifying the material that needs to be learned, distinguishing it from other material if need be, having repeated contact with the material, and formally committing to memory whatever material is not acquired naturally through exposure	Cohen (1998, p. 2)	Li (2005, p. 7)
Language use	Involving four subsets of strategies: retrieval strategies, rehearsal strategies, coping strategies, and communication strategies		
Strategies of successful learners	Use of clarification and verification, monitoring, memorization, guessing/inductive inferencing, deductive reasoning, practice, creating opportunities for practice, and production tasks related to communication	Rubin (1975, p. 124)	Qiang (2005, p. 10)

The work by LLS experts has stimulated CSL/CFL research from linguistic, psychological, and socio-cultural perspectives. The linguistic perspective has entailed looking at strategies for Chinese language acquisition as viewed from the skill areas: Chinese character learning, reading, listening, speaking, and writing. The psychological perspective has focused on patterns of cognitive and metacognitive processing of the Chinese language, as well as on affective variables related to Chinese language learning. The socio-cultural perspective has looked at the role played by the learners' background characteristics and how these affect their CSL/CFL results.

Thus, summing up, it would appear that the majority of CSL/CFL studies either describe strategies used by CSL/CFL learners across the skill areas or introduce theories in LLSs and/or their implications for CSL/CFL work (see Table 4).

Table 4 Strategy research in CSL/CFL

Strategy research focus	Chinese publications		English publications		
	Journal	Dissertation	Journal	Dissertation	Other
General descriptions of CSL/CFL strategies	13	6		3	
Character learning	7	5	8	3	1
Reading	3	1	3	5	1
Speaking	1	6			
Listening	1	5			
Factors relating to strategy use	5	3	1	1	
Introduction of strategy theory	5				

Focus of Strategy Research in CSL/CFL

The remainder of the article will focus exclusively on empirical research involving strategies for learning Chinese. We will consider strategy research on Chinese character learning, reading, speaking, listening, and factors relating to strategy use. Since vocabulary is strongly associated with character learning, relevant research in this area will be integrated into the Chinese character learning section.

Chinese character learning strategy research. The CSL/CFL strategy research focusing on character learning suggests that lexical development is a major concern among researchers. Early studies tended to investigate CFL learners' strategies for character recognition (Hayes, 1988; Shen, 2004). More recent research presents a diverse profile including the investigation of:

- general strategies that students use for character learning (Chen, 2009; Ma, 2007; McGinnis, 1999; Shen, 2005; Yin, 2003),
- specific strategies for character learning (Kuo, 2000; Liu & Jiang, 2003; Shen, 2010),
- character learning strategies employed by students from character-based vs. alphabetic-based languages (Arrow, 2004; Jiang & Zhao, 2001),
- the effects of CSL/CFL learners' strategy use in character learning (Ke, 1998; Kuo & Hooper, 2004; Shen, 2004; Zhao & Jiang, 2002),
- strategy instruction and character learning (Chen, 2011).

The often-quoted Hayes' (1988) study perhaps is the earliest one to investigate students' strategies in recognizing Chinese characters. Starting with the premise that the dominant processing strategies would be revealed by the types of errors that the learners made, Hayes (1988) designed two tasks to determine whether beginners would be able to correctly recognize the target character that was mixed with phonological, graphic, and semantic distracters. On both tasks, students were briefly presented the target characters. The first task grouped the target character with random individual characters, while the second task wove the target character into a complete sentence. The study found that students used a mixture of visual and graphic strategies in encoding the individual characters, whereas they used the graphic strategies more to identify the target character in sentence contexts. This line of research has continued to be taken by later researchers (e.g., Shen, 2010), with a few studies shifting their attention to more general strategy use by CSL/CFL learners.

Notably, McGinnis (1999), Yin (2003), and Shen (2005) all worked on describing the general strategies used by English-speaking learners in order to

learn Chinese characters. McGinnis (1999) conducted a study with 29 first-year college learners of CFL who self-reported their character learning strategies in a 5-week summer immersion program. It was found that students used a range of strategies, including rote repetition, creating personal stories as to how the characters looked or sounded, and the use of radicals and phonetic components to memorize characters. Moreover, the first two types of strategies were favored most by students in the study. Shen (2005) not only investigated the strategies that were common to 95 English-speaking learners of Chinese, but also explored the underlying variables for students' strategy use. The findings from a questionnaire survey indicated that students used as many as 30 types of strategies for character learning, which were further grouped into two categories: "orthographic knowledge-based cognitive strategies and metacognitive strategies" (Shen, 2005, p. 61). Finally, Yin (2003) conducted a longitudinal investigation of beginning CFL students' learning difficulties and coping strategies over a 3-year period. It was found that 91% of the participants used the strategy of writing characters repeatedly, 77% memorized character components (radical and phonetic components) or repeatedly read characters aloud with reference to pinyin,⁴ 65% used phonetic components if available in characters, and 62% used flashcards to learn the Chinese characters.

A further study was conducted among 65 beginning American students as to their Chinese character learning strategies, and it was found that their use of graphic strategies (Table 2) and memory strategies (focusing on learned graphic components or associating characters with similar radicals) ranked as the top two categories (Chen, 2009). In contrast to these larger-scale studies, Ma (2007) developed a longitudinal design to investigate the Chinese character learning strategies used by one particular CSL learner. It was found that the learner's written errors declined significantly when the number of his written Chinese characters reached 4,000. After careful analysis, the author found that except for a stable use of summarizing strategies (e.g., summarizing characters with similar pronunciation, meaning, or graphic features), certain patterns of strategy use emerged:

- more whole-word strategies than graphic-component cues,
- pinyin was used to assist in the memorization of characters,
- at the onset of learning English translation was used,
- characters were written in words and sentences rather than in isolation,
- pinyin was used exclusively just at the beginning, giving way to a mixture of pinyin and characters, and then ultimately written characters alone,
- the manner of reviewing characters developed from an unplanned ap-

⁴ The official system to transcribe Chinese characters into the Roman alphabet.

proach to one of careful planning, for example, determining numbers of characters to review, time intervals for revision, and summarizing learned characters with similar pronunciation, meaning, or graphic features,

- character learning shifted from simply completing homework with the characters to actively copying words and texts.

The studies described above indicated that Chinese character learning involves considerable use of memorization – a finding which stimulated further study to describe the specific strategies used to enhance character memorization and retention. Another assumption affecting the research effort was that learners whose first language (L1) was character-based would possibly have an advantage over those with an alphabet-based system when learning Chinese characters. One study that compared American and Japanese students' Chinese character learning strategies (Arrow, 2004) found that both sets of learners deployed a variety of strategies. Nevertheless, the American students in the study favored using flashcards and character association, whereas Japanese students preferred to write the characters repeatedly. A similar comparative study (Jiang & Zhao, 2001) found that while both groups of learners favored whole-word memorization along with the mechanical repetition of the characters, learners from a character-based, mother-tongue background tended to adopt more phonetic-meaning strategies in dealing with Chinese. In contrast, those from an alphabet-based L1 background were more likely to use graphic strategies, as well as strategies for reviewing the learned characters regularly.

In addition to simply labeling the CSL/CFL learners' strategy use in Chinese character learning, a few researchers went further and examined the effectiveness of their strategy use. In Ke's (1998) study, for example, students were asked to compare 11 pairs of character learning strategies. The author found that although the majority of students valued learning and using character components, only 50% thought that the strategy of focusing on the structure of the character structure (radical and phonetic components) was effective. In addition, most students held that memorizing characters as a whole was more effective than identifying recurring parts of the characters. Kuo and Hooper (2004) investigated the effects of five different character learning strategies employed by five different groups of participants:

1. a translation group given characters with English translations,
2. a verbal coding group given both English translation and a brief verbal description of characters' etymological origins regarding their components,
3. a visual group given an English translation of the characters and pictures of the concepts,
4. a visual and verbal coding group combining the strategies of the two

previous groups,

5. a self-generated mnemonics group encouraged to create their own memory aids.

The researchers found that students in the self-generated mnemonics treatment group performed better than those in the visual coding, verbal coding, and translation strategy groups. At the same time, those in the visual and verbal coding groups outperformed those in the translation strategies group.

Another study of the effectiveness of strategy use in character learning was carried out by Zhao and Jiang (2002), who investigated the effect of Chinese character learning strategies on 124 nonnative Chinese speaking learners. It was found that Chinese language use, including making use of the learned Chinese characters in conversations or in writing, and summarizing learned characters with similar pronunciation, meaning, or graphic features, appeared to be the most effective. A recent study designed a program of strategy instruction and explored the subsequent effects (Chen, 2011). The study revealed that the students' knowledge of semantic, phonetic, and positional components was potentially important in enhancing their character learning achievement.

Chinese reading strategy research. Early interest in CSL/CFL learners' reading strategies focused on strategies for perceiving and processing of text. Since Chinese written text has no natural parsing between words, researchers were curious to find out how learners were able to process a text despite the lack of segmentation into word units. For example, Everson (1986) examined the effects of artificial word-unit spacing by nonnative readers of Chinese at different levels based on the frequency and duration of their eye fixations. It was found that artificial word-unit spacing did not affect CFL beginner readers, but did have an impact on advanced readers. Beginning readers were unable to take advantage of the added word-unit segmentation due to lack of lexical knowledge. Those advanced readers who had developed perceptual strategies for reading a Chinese text without word segmentation actually found this artificial parsing to be somewhat of a hindrance.

Furthermore, it has been found that parsing of word units is less of an issue for CFL readers than their knowledge of vocabulary. The challenge of vocabulary size has informed a number of studies investigating reading strategies used by CFL learners at different proficiency levels. One study dealing with the reading behaviors of 20 advanced and highly advanced CFL learners found that both reader groups used graphophonic, syntactic, and semantic cues to comprehend the text (Sergent, 1990). In addition, as proficiency level increased, the strategy of omitting the unknown parts of the text was seen to

decrease and substituting the unknown text with something close in meaning increased. A follow-up study (Li, 1998) confirmed the findings by Sergent (1990) and added the finding that beginner CFL learners also shared similar reading strategies such as using graphophonic, syntactic, and semantic cues to understand the Chinese texts.

A distinctive difference in the reading strategy use of intermediate as compared to advanced CFL readers was revealed through a study using verbal report (Everson & Ke, 1997). In this study, seven English-speaking learners of Chinese were asked to read a short news article silently and to verbalize those thoughts that might reflect their comprehension of the text. Afterwards, they were asked to read the article silently again and then to provide a written recall of the text. The researchers identified the participants' reading strategies through careful analysis of the verbal protocols. Advanced learners were found to use auditory strategies with frequency – for example, reading aloud and under their breath, subvocalization, and focus on pronunciation and remediation of the sounds to assist their reading comprehension. In addition, advanced-level students considered recalling details of the original text a desirable skill and demonstrated their ability to infer the meanings of what were referred to as *multi-characters* through the use of a "character network strategy" (see Table 2). The intermediate-level learners on the other hand were often bothered by unknown characters and uncertain segmentation of word units. Further work comparing students at three levels of CFL reading proficiency in Chinese was conducted by Chang (2010), who also found advanced readers desired to recall everything in writing, which indicated that they were aware of the types of strategies used in order to complete the recall task.

Another type of study focused on the genre of text. Arguing that text genre might influence CFL readers' strategy use, Lee (1998) examined the reading strategies of eight American CFL learners with two different text genres: argumentation and narrative respectively. Two broad strategy categories were found through analyzing participants' think-aloud protocols: unit identification and unit assemblage strategies (see Table 2). The study found participants predominantly used unit identification strategies that helped them solve problems encountered at the vocabulary, orthography, and grammatical levels when they were reading. Moreover, the more efficient readers did not show a significant difference in either reading strategy types or frequency when compared with less efficient readers. A similar finding was also seen in two different text genres. Yet, with their stronger word recognition base and more lexical and syntactic knowledge, more efficient readers demonstrated greater confidence in their decision-making while reading.

Whereas the research reviewed with regard to reading strategies generally involved small numbers of participants, Qian (2006) designed a questionnaire survey of Chinese reading strategies and distributed it to 118 Korean intermediate-level learners in China. She reported her participants' most frequently used strategies to be the following:

- prediction,
- use of context,
- marking the problematic area and skipping,
- skimming, and
- browsing the text title and pictures to determine the content.

These strategies were in line with findings revealed by Lee's (1998) study of strategies for dealing with text genre.

Chinese speaking strategy research. It would appear that Chinese speaking strategy research is rather limited and only found in Chinese publications and concentrated on comparative studies, either comparing students who study in CFL and CSL environments (Lu, 2005; Wu, 2008) or those with different L1 backgrounds (Li, 2007; Na, 2007). In addition, Oxford's *Strategy Inventory for Language Learning* (SILL) seems to be the instrument of choice for all of these studies.

Using an adapted version of the SILL, for instance, Lu (2005) investigated 24 American exchange students who joined a 4-week summer program, focusing on their speaking strategies both while in the United States and while in China. The study found that participants reported using L1 avoidance strategies, compensation strategies, accuracy strategies, and metacognitive strategies most frequently in the United States. In China, strategizing about fluency by prioritizing the flow of their speaking, using their L1 to express meanings when necessary, and using other meaning-focused strategies apparently increased, whereas accuracy strategies declined. According to learner report, the reason for this increased use of L1 in China was the increasing difficulty encountered when engaging in oral tasks. Similarly, Wu (2008) conducted retrospective interviews with four Italian students who started Chinese language learning in Italy and studied in China for three months as exchange students. He found that in the CFL context (Italy), the students tended to use prepared dialogues to communicate, whereas in the CSL context, they often asked the interlocutor to repeat or explain what they had said, or simply guessed the meaning from context. Wu's conclusion was that in the CSL context these students took advantage of the target-language environment and tried to speak more Chinese.

Also employing an adapted version of the SILL, both Li (2007) and Na (2007) compared Chinese speaking strategy use by students from Asian and Western backgrounds. Li (2007) investigated 84 beginner CSL students' speak-

ing strategies and found the most frequent strategies to be the social, compensatory, and cognitive strategies. The four strategies that were reported to be the most effective were “trying to notice the oral Chinese errors,” “using a dictionary to help understand or speak Chinese,” “attending out-of-class events where Chinese is spoken,” and “applying grammar to new situations when speaking Chinese.” Students from a Western background reported using more cognitive and fewer affective strategies than those from an Asian background. Na (2007) compared speaking strategy use by 106 Korean, American, and European CSL learners, and found that the strategies reported to be used most frequently by all participants were social and metacognitive strategies. Korean students reported using more cognitive and affective strategies but fewer memory strategies than their American and European counterparts.

It is interesting to note that the speaking strategy research has helped to give prominence to interactions between speakers and their interlocutors, and especially to the dynamics involved when learners are at different proficiency levels (Nakatani & Goh, 2007). Given that CSL/CFL research on speaking remains limited to date, it is difficult to make generalizations with regard to the research outcomes. What would be of particular benefit at this point would be more studies that look at the CSL/CFL strategies of learners engaged in task-based interactions.

Chinese listening strategy research. Strategy research on Chinese listening appears to be limited to six MA theses done in China and all using the SILL to explore three areas: (a) the comparison of listening strategies use reported by CFL and CSL learners (H. Zhang, 2007) or description of the strategies of CSL learners at different proficiency levels (Bai, 2007; Di, 2007), (b) the relationship between listening strategy use and listening achievement (L. Zhang, 2007; Zhou, 2004), and (c) listening strategy instruction (Yuan, 2005).

In an investigation of the listening strategies used by Korean CFL learners (in Korea) and CSL learners (in China), H. Zhang (2007) found that the Korean CSL students reported more of all three types of strategies (metacognitive, cognitive, and social/affective) and with greater frequency than participants in the CFL environment. In both environments, social/affective strategies appeared to be reported most frequently and metacognitive strategies least frequently. Data analysis showed that participants in the CSL environment reported a higher frequency of use for strategies such as “deduction,” “association,” “prediction,” and “the use of grammatical knowledge” in listening activities than those in the CFL environment. Two other studies both investigated CSL learners’ metacognitive strategy use in listening among various

levels of CSL students and reported that frequency of metacognitive strategy use correlated positively with learners' proficiency level (Bai, 2007; Di, 2007).

Two of the MA studies examined the relationship between CSL learners' general listening strategy use and listening achievement (L. Zhang, 2007; Zhou, 2004). Both studies used a listening test to determine participants' listening proficiency and grouped them into high achievers and low achievers. In the earlier study, Zhou (2004) found that the Korean students under investigation reported using social/affective strategies most frequently, followed by meta-cognitive and cognitive strategies. In addition, there was a significant difference in strategy use between high and low achievers: The high achievers reported using more strategies for analyzing grammar in Chinese L2 and the low achievers more L1 strategies (e. g., translating the sentences that were heard into the L1). In the later study by L. Zhang (2007), 69 Japanese CSL students from four Chinese universities were reported to have used more cognitive strategies than social/affective and metacognitive strategies. Moreover, high achievers on the listening test reported using more monitoring, evaluation, prediction, and questioning strategies, whereas low test achievers reported using more strategies for dealing with new vocabulary.

In contrast to the other MA studies, there was one which looked at whether strategy instruction could influence beginner- and intermediate-level CSL learners' listening strategy use (Yuan, 2005). The content for strategy instruction consisted of three types of strategies: basic listening strategies, cognitive strategies, and metacognitive strategies. Instruction relating to these three types of strategies was delivered in a chronological order for a total of three months. After each strategy instruction session, a posttest was administered to evaluate the strategy instruction by comparing results with those in the pretest. The results were reported as favoring the intervention.

While the SILL served as a convenient benchmark for comparing listening strategies across the different studies, the fact that different studies used differing criteria in determining their learners' listening achievement makes it difficult to compare the findings across the studies.

Individual learner variables relating to LLS. The role of individual learner variables has been investigated in CSL/CFL strategy research. For example, strategy use has been related to language achievement (Lin & Lü, 2007; Wang et al., 2009), motivation (Shen, 2009), cultural patterns (Zhang, 2008), and to gender, age, and learner's L1 as well (Li, Yao, & Liu, 2011; Xiang, 2010; Yao, 2009).

Various studies have related reported frequency of language strategy use to language achievement measures. For example, Lin and Lü (2007) investigated the relationship between students' strategy use and learning achieve-

ment among 120 Vietnamese students, using Oxford's SILL (1990) and the *Chinese Language Test* (HSK). They reported that participants in their study demonstrated ineffective use of strategies and no obvious correlations were identified between the two variables. There was some indication, however, that those with higher HSK scores also tended to use memory strategies less frequently and to study independently.

Another study looked at the relationship between metacognitive beliefs and strategies on the one hand and language achievement on the other (Wang et al., 2009). The study took as its point of departure Shen's (2005) Chinese character learning strategy questionnaire and added metacognitive beliefs and strategies to the design. The revised survey instrument was administered to 45 English-speaking beginning learners of Chinese. The results of the survey were correlated with students' end-of-term achievement scores in Chinese. The researchers found that students' metacognitive strategies (e.g., setting realistic goals, perseverance at tasks, and monitoring the process) related positively to language achievement. According to Wang et al. (2009), higher frequency of metacognitive strategy use was an indicator that the learners were actively engaged in self-regulated learning behaviors. This interpretation of the findings would be consistent with Lin and Lü's (2007) finding that those learners achieving higher test scores appeared to be more engaged in independent learning.

Since the SILL was constructed largely with the interest of relating perceived strategy use to other individual variables, it is of little wonder that it became a popular tool for CSL/CFL researchers to examine individual variables or clusters of variables relating to learners' strategy use. Shen (2009) integrated motivational items into the SILL and investigated 132 CFL learners at three different proficiency levels. It was found that all participants reported that they tended to use social and metacognitive strategies. As the proficiency level increased, both affective and social strategy use were also higher. In addition, integrative motivation was positively related to affective strategy use, and instrumental motivation was positively related to metacognitive and cognitive strategies, but negatively associated with social strategies.

Another study, also using the SILL but with minor adaptations, was conducted in order to investigate CSL learners' strategy use in relation to a number of individual variables such as gender, age, length of time learning Chinese, proficiency level, and L1 (Li et al., 2011). The researchers administered a survey to 109 CSL students and found female participants reported using more direct strategies and strategies associated with the style preference of field-dependence than male participants. They also found that 20-to-30-year-old students (as opposed to those younger than 20 or older than 30) and lower-level students reported using more memory and social strategies. In addition,

participants from different L1 backgrounds showed differences in reported use of metacognitive strategies and social strategies. Those studying Chinese for less than a year reported a tendency to use more indirect strategies. Another study found that Korean students' age, gender, length of time learning Chinese, and personality were all related to strategy use (Xiang, 2010). For instance, being between 18 and 30 years of age, being female, and being a student of Chinese for less than 2 years were all variables found to relate to greater communication strategy use. Nevertheless, no significant difference in strategy use in terms of gender difference was reported by Sung (2009).

Research Methods Used

Questionnaire Survey

A questionnaire survey appears to be the prevailing instrument used in CSL/CFL strategy research. As noted in this review, there have been two approaches to conducting a survey: to use an established, existing questionnaire, such as Oxford's (1990) SILL (Chen, 2008; Gao, 2009; Jiang, 2000; Li, 2007; Lin & Lü, 2007; Lu, 2005; Na, 2007; Tao, 2002; Wang, 2006; Wu & Chen, 2006; H. Zhang, 2007;) or Gu and Johnson's (1996) strategy inventory for vocabulary learning (Yan, 2007); or to use a self-designed questionnaire appropriated for the specific research focus (Jiang & Zhao, 2001; Shen, 2005; Yin, 2003).

As a well-known structured, general strategy questionnaire, the SILL was actually constructed in the 1980s, and set out to cover what were then seen as six broad types of strategies: metacognitive, cognitive, memory, compensation, affective, and social. Although the SILL is in many ways out of date and even out of sync with current thinking (e.g., Oxford stopped referring to memory strategies and compensation strategies 20 years ago), the measure has been widely used in CSL/CFL research, either directly or with modifications. Most studies have used the original 80-item version, with the intention of gaining an overall picture of CSL/CFL learners' strategy use. For example, Jiang (2000) simply translated that version into Chinese and made minor changes about wording for some statements to avoid misunderstanding. In her study, Chen (2008) administered the 50-item version. Alternatively, some studies have adapted the SILL to investigate specific language skills such as Chinese listening (Bai, 2007; Di, 2007; H. Zhang, 2007; Zhou, 2004) and speaking (Lu, 2005; Na, 2007). Similarly, Yan (2004) found Gu and Johnson's (1996) strategy inventory for vocabulary learning to be particularly relevant to her study, but also felt the need to delete or edit some items that were inappropriate for Chinese vocabulary strategy research.

As to the second approach to strategy questionnaires, a small number of researchers have developed their own questionnaire instrument (Jiang & Zhao, 2001; Shen, 2005; Yin, 2003). Jiang and Zhao (2001) designed a Chinese character learning strategy inventory, based on classroom observation, interviews with beginner CSL students and course instructors, existing literature on language learning strategy research instruments such as the SILL, and findings from research on Chinese characters (Ke, 1998; McGinnis, 1995). The inventory had two broad categories: cognitive strategies (e.g., using strokes, making phonetic-meaning connections, graphics strategies, summarizing strategies, revision strategies, and strategies for using the learned characters in writing and as an aid to speaking correctly⁵), and metacognitive strategies (planning and monitoring). According to the authors, this was the first quantitative inventory of strategies for Chinese character learning.

Another study of CFL learners' Chinese character learning strategies was conducted by Shen (2005). She first used a 12-item, open-ended questionnaire survey to identify the character learning strategies that students reported using on a daily basis. Then, based on the 176 responses that she obtained, she constructed a structured, 59-item questionnaire survey that was intended to parallel the regular character learning process and included:

- questions about strategies for dealing with the introduction of new characters,
- questions about strategies for enhancing understanding, and
- questions about strategies for memorizing, practicing, and reviewing characters.

It has been observed that Chinese character learning is the biggest challenge for beginning CFL learners because it involves considerable memorization (Yin, 2003). A questionnaire survey was constructed by Yin (2003), focusing on the three elements involved, namely, sound, shape, and meaning.

So, along with the major penchant among researchers to use the SILL (either original or adapted) as the preferred instrument for obtaining a general profile of CSL/CFL students' LLSs, there has also been some tendency, albeit limited, to design inventories, especially with regard to the focus on Chinese character learning strategies.

Verbal Report

Verbal report has been used extensively in Chinese reading strategy research (Everson & Ke, 1997; Lee-Caroline, 1998; Li, 1998; Thompson, 2008). In

⁵ For example, students learn 本(*ben*) as a quantifier for 'books' and use it both in writing and for proper oral communication as well.

Everson and Ke's (1997) study, students were asked to read silently a short news article at their proficiency level. Then they were asked to provide verbal report about the strategies that they used to comprehend the article. Their verbal report data were tape-recorded and analyzed by the two researchers. Another study of CFL strategies provided subjects with an orientation to verbal report before the data were collected (Lee-Caroline, 1998). Then, in the process of providing verbal report, participants were free to stop for a break when necessary and use a dictionary whenever they wanted. The researcher herself operated the video camera and took observational notes. If participants remained silent for up to 30 seconds, she would prompt them with questions such as "*What are you thinking?*" If participants did not verbalize much during the verbal report activity, the researcher would, at the end of a paragraph, ask questions such as "What else did you think?" Occasionally other questions were asked at the end of a paragraph or when participants were verbalizing their thoughts, in order to elicit more information (e.g., "*How did you guess that?*" or "*Where did you learn this?*").

Another study used verbal report in a reading and retelling activity in order to identify participants' CFL reading strategies and their reading difficulties (Thompson, 2008). The study included substantial orientation to subjects regarding how to provide the verbal report data. The orientation included instruction, demonstration, and practice before the collection of the data, similar to the procedure in the Lee-Caroline (1998) study. In contrast to the other verbal report studies, Li (1998) asked her participants to read aloud and to provide verbal report at four different times, with an interval of 7-10 days between sessions. As in the other studies, Li (1998) held an orientation session before the actual verbal report activity and also allowed participants to use a dictionary or a vocabulary list during their verbal report session. The researcher noted that the subjects' familiarity with verbal report procedures enhanced the validity of this research method.

While in all cases, verbal report sessions were audio/video tape-recorded and analyzed, the report of findings from the verbal report data differed from study to study. For example, in the Everson and Ke (1997) study, after the verbal report protocols were transcribed, two researchers worked independently to identify the reading strategies in the data, and then discussed their findings in order to reach agreement. Following a similar procedure, Lee-Thompson (2008) referred to existing literature on reading strategies to inform the elicitation of reading strategy schemes and categorization. Lee-Caroline's (1998) data analysis was more elaborately documented, with provision, for example, for the transcription procedure. After transcribing the protocols, she replayed the video-tapes, checking participants' actions such as

consulting a dictionary. Afterwards, the transcription was further examined by another colleague. Unlike the other researchers, Li (1998) used miscue analysis to analyze the participants' reading strategy use in the verbal report protocols. The data were also analyzed by a colleague to enhance reliability.

Case Studies

The case study approach was believed to be effective in documenting individual CSL/CFL strategy use from a developmental perspective and therefore was used by some researchers (Arrow, 2004; Ma, 2007; Wu, 2008). For example, to gain richer and deeper information on participants' unique experiences in the use of strategies for learning Chinese characters, the case study approach was adopted in Arrow's (2004) research. Descriptive data were gathered through interviews, participants' study blogs, and the researchers' own observations. Interviews were utilized to gather information on participants' Chinese language learning experiences, their perceived difficulties in the four main language skills, and their reported strategies use in character learning. Students were asked to maintain a study blog for a 4-week period. Participants were asked to record in writing their reactions, feelings, and thoughts about new characters, as well as to record the strategies that they used in Chinese character learning. In addition, the researcher observed the learners' behavioral responses when new characters were introduced or when they were asked to do tasks involving Chinese characters.

In another case study focusing on Chinese character learning strategies, Ma (2007) examined one particular learner's Chinese character learning experience. Data were collected using the learner's notebook, the subject's character exercise book over 9 months, a Chinese character test, and the use of a Chinese character learning inventory designed by Jiang and Zhao (2001). All written characters in a participant's repertoire were carefully examined to identify character learning patterns, and the ratio of errors occurring per thousand characters in these written characters was considered as a criterion for determining the participant's stage of development. Moreover, a character test involving recognition and naming was administered. The recognition part was based on the material learned in the subject's textbook and on performance in recognizing 15 new words which contained previously-learned character information. In addition, the subjects responded to the Chinese character learning inventory mentioned above. From the researcher's perspective, the vocabulary test and the questionnaire survey were to further verify the findings based on analyzing the written characters appearing in the students' notebook.

Another approach to case study work involved the investigation of Italian students' CSL speaking strategies. Drawing from the results of a questionnaire survey administered to 46 Italian students who joined a 3-month exchange program in China, Wu (2008) focused on four successful learners and used classroom observation, homework, analysis of test data, and interviews as the source for the LLS data. The researcher noted that all interviews were conducted by two interviewers, with one questioning while the other took notes and made observations.

Experiments

Experimental research was employed by some researchers (Shen, 2010; Yuan, 2005) to examine the effect of a treatment on students' strategy use. In order to explore vocabulary learning strategies, Shen (2010) designed two treatments, the first involving the use of verbal strategies alone, and the second involving the use of both verbal and imagery strategies. In addition, the first treatment involved the use of concrete words and the second the use of abstract words. After each experiment, students took two vocabulary tests, one immediately after the instruction, the other administered one day later. The first test required students to choose the correct shape of a word (in a set of three similar-looking words) for which an English definition was given. The second test required the students to write out the pinyin and English meanings for a given Chinese word.

Another, earlier example of experimental research with LLSs was the design of a study to determine the impact of strategy instruction on CSL students at two proficiency levels: beginning and intermediate (Yuan, 2005). The researcher incorporated three levels of listening strategy instruction into the treatment: basic listening instruction, cognitive strategy instruction, and metacognitive strategy instruction. Basic listening instruction consisted of identification of pronunciation and tones, as well as a grammatical components analysis. Cognitive strategy instruction included guessing, selective attention, and summarizing strategies. Metacognitive strategy instruction involved evaluation and planning. Each strategy instruction session lasted for 50-60 minutes, during which time the intended strategies were demonstrated by the instructor, practiced by the participants, and used in new tasks by the participants. When each stage of strategy instruction was finished, a test designed for that stage of the treatment was administered. Participants were asked not only to answer the test items, but also to describe the strategies that they had used in order to answer the test items.

In closing this section, we note that interviews and classroom observation were used as supporting methods in a number of the CSL/CFL strategy studies. Typically, interviews were combined with questionnaire surveys (e.g., Cao, 2010) to clarify and/or elaborate answers to the surveys. Alternatively, interviews were used to inform questionnaire design (e.g., Li, 2004). At times, classroom observation was used (e.g., Li, 1998) to document both teaching and learning activities in order to enhance the researchers' understanding of participants' strategy use. Overall, while different research methods were used in CSL/CFL strategy research, emphasis was given to questionnaire surveys. Although some efforts were made to use verbal report, case studies, and quasi-experimental interventions, there appears to be considerable room to include more of these approaches in future CSL/CFL research.

Issues with CSL/CFL Strategy Research

Lack of Research on Chinese Language Learning

In general, strategy research in CSL/CFL is still in its infancy and only rarely do such studies undergo rigorous scrutiny. Clear roots in the LLS literature can be seen, especially with regard to the following:

- the somewhat simplistic classification into cognitive, metacognitive, social, and affective strategy distinctions (Cohen, 1998, 2011; O'Malley & Chamot, 1990; Oxford, 1990, 2011; Wenden, 1987);
- the correlation of strategy use with learner characteristics (Green & Oxford, 1995);
- the correlation of strategy use with cultural background and strategy use (Oxford & Nyikos, 1989);
- the correlation of strategy use with language proficiency and language achievement (Hsiao & Oxford, 2002);
- determination as to the effectiveness of strategy instruction (Ellis & Sinclair, 1989; Wenden, 1991, 1999).

Although CSL/CFL strategy research dealing with the above issues has revealed useful findings, nonetheless the majority of the studies seem to rehash the same kinds of findings, rather than yielding new insights into the field. Taking listening strategies in LLS research as an example, prominence is given to the elicitation of listening strategies using think-aloud protocols, the identification of relationships between strategy use and other variables such as successful listening comprehension and group differences, the examination of how prior knowledge can influence listeners' strategy use, and the effects of strategy instruction (Macaro, Graham, & Vanderplank, 2007). Furthermore, descriptions of

listening strategies tend to be based on “the role they play to facilitate listening comprehension and overall listening development” rather than the common notion of cognitive and metacognitive categorization (Vandergrift & Goh, 2012, p. 90). Nonetheless, research in CSL/CFL still tends to be focused almost exclusively on reporting students’ use of research categories or confirming students’ strategy use in relation to learner proficiency.

It is worth noting, however, three studies that significantly contributed to CSL/CFL strategy research. Everson and Ke’s (1997) proposal of adding an orthographic dimension to Bernhardt’s constructivist model (1991) of the reading process has shed light on difficulties in segmenting word units as encountered by CSL/CFL learners when reading Chinese text. Similarly, both Jiang and Zhao (2001) and Shen (2005) developed comprehensive descriptions of Chinese character learning strategies, which paved the way for further research. Nevertheless, how CSL/CFL learners deal with orthographic problems in reading has not been examined. In addition, it would be helpful in future studies to determine the reliability and validity of the two current Chinese character learning strategy inventories.

Although CSL/CFL might share some features with other second/foreign language learning, some of the key features of the Chinese language distinctively differ from other languages. To name but a few, there are the following:

- the convergence of graphics, phonetics, and meaning within one character;
- the complex relationships between stroke, radical, and character;
- the variation in pitch and tones, with slight differences resulting in a change of meaning; and
- the lack of natural parsing between words in written text.

Existing research has just begun systematic examination of the difficulties that CSL/CFL learners encounter and the language strategies that they use in an effort to deal with these difficulties. The claim that Chinese character learning is the most difficult problem that CSL/CFL learners encounter is more an assumption voiced by researchers in the field than a reality validated by empirical study of the learners themselves.

CSL/CFL Strategy Research Lagging Behind General Developments in LLSs

While CSL/CFL strategy research is seen as an outgrowth of LLS, it lags behind in the field of LLS because it is not well-informed about the latest theoretical developments in LLSs. For example, CSL/CFL strategy researchers have adopted certain features of the LLS theories from the 1980s and early 1990s without checking to determine whether they reflect current thinking. Ever since the early strategy research in the 1970s that started with the good lan-

guage learner studies (Naiman, Fröhlich, Stern, & Todesco, 1978; Rubin, 1975; Stern, 1975), research has passed through three stages based on understandings of the term *strategy*: strategies as a universal tool for all language learners (1970s), strategies as diversified and individualized (1990s), and strategies as situated in certain language learning contexts (2000s). In a comprehensive review of LLSs, Grenfell and Macaro (2007, p. 27) concluded that there are three major developments in the field: (a) the focus on “specific examples of strategic behavior in the context of specific tasks and skills,” (b) a shift from the “quantity” of strategy types to the “quality” of strategy use, and (c) careful disentanglement of independent variables such as “stage of learning” and “time of beginning learning” before correlating strategy use and achievement. Relating these developments to CSL/CFL strategy research, it would appear that most of the studies of learners of Chinese do not reflect the distinctions being made in more recent strategy research in the world.

Except for a few studies (Everson & Ke, 1997; Lee, 1998; Thompson, 2008) that have attempted to reveal and explain participants’ strategy use in actual reading tasks, most of the studies have still been focused primarily on descriptions of the frequency of CSL/CFL learners’ strategy use in particular language skill areas or general Chinese language learning. Attention is yet to be given to the most recent advancements in LLSs. For example, more recent LLS volumes (e.g., Cohen, 2011; Cohen & Macaro, 2007; Oxford, 2011) have not only summarized LLS from different perspectives over the past four decades, but have also proposed new directions. Excluding these works disadvantages CSL/CFL strategy research in its own development.

Second, lack of familiarity with existing issues in the LLS field has obviated the possibility for CSL/CFL strategy researchers of advancing their research to a higher standard. In general, CSL/CFL strategy research has not paid heed to the criticisms about following certain research assumptions. For example, “the more types of strategy use the better” claim has already been rejected in LLS, which instead has appeared as an interpretation of research findings in CSL/CFL research (e.g., L. Zhang, 2007). At the same time, the ongoing debate about unresolved issues such as definitions of the term *strategy*, the accessibility of the construct, and the sophisticated deployment of strategies by successful learners, has not seemed to be of concern to CSL/CFL strategy researchers. Thus, CSL/CFL strategy research still has a way to go in order to advance the field. Current issues of debate in LLSs can serve to provide directions for future research.

Issues in Research Methodology

The methodology employed in CSL/CFL strategy research has been seen to have weaknesses. The first and most notable potential shortcoming is the overwhelming use of questionnaire instruments, primarily in the form of Oxford's (1990) SILL. The problem is that the sole use of large-scale inventories in LLS research has been resoundingly criticized. For example, concern has been voiced about the inappropriateness of transferring general LLS inventories to another setting or even translating them into another language (Cohen, 2011, p. 73; LoCastro, 1994). Similarly, Macaro (2001) pointed out that the SILL is essentially a tool to check respondents' frequency of strategy use, but that it is sometimes difficult for respondents to quantify their responses (Macaro, 2001). White, Schramm, and Chamot (2007, p. 95) added their concerns about the limitations of questionnaire instruments. They noted that from the respondents' point of view, for example, there were difficulties in understanding questionnaire items which deal with *reported* as opposed to *actual* strategy use, and that respondents may have problems recalling the actual strategies that they used. These issues obviously need to be addressed in LLS in general, and so also in CSL/CFL strategy research as well.

Second, while verbal report has clearly been a significant tool for conducting research on reading strategies of learners of Chinese, the way that various researchers have operationalized this tool has varied. This is not so surprising in that verbal report is simply a general approach that can be operationalized in a number of different ways (see Cohen, in press). One issue that arises, then, is the extent to which there is consistency across studies in terms of whether and how subjects are oriented as to the process of providing verbal report before the data collection takes place. Moreover, caution should be paid to the requirements of tasks and the language used in verbal reports since both may affect participants' strategy use (Macaro, 2001). The directions given to subjects and other aspects of the verbal report tasks (such as the context for the tasks and the goals for learning) need to be explicitly documented (White et al., 2007). Moreover, even details such as where to stop and prompt students raises validity questions (White et al., 2007).

In addition, a few CSL/CFL strategy researchers have engaged in case study research (e.g., Arrow, 2004; Ma, 2007; Wu, 2008) or quasi-experiments (e.g., She, 2010; Yuan, 2005). However, good depictions of a case or cases need "thick description" that enables the reader to have a holistic picture of the context where research takes place (Gall, Borg, & Gall, 1996, p. 459). In the studies outlined above, rigorous case procedures were not necessarily followed with sufficient caution. For example, while both Arrow (2004) and Wu

(2008) mentioned the use of classroom observations, important elements such as time length, frequency, and an observational guide were not found in their description, which may raise questions as to the reliability and validity of their case study findings. Likewise, in Ma's (2007) study, no information was provided as to how the participant's instructor taught in class, and as to whether the participant had other ways to learn Chinese characters aside from the use of the notebook and the exercise book. Furthermore, the participant's own evaluation of the character learning experience was excluded from the write up. It would seem that CSL/CFL researchers need to tailor their research designs and methodologies to be more consistent with the significant advances in the field of LLS.

Chinese- and English-Language Publications

When comparing Chinese- and English-language publications on strategy research in CSL/CFL, both have their strengths and weakness. Chinese-language publications call attention to a large number of studies in areas relating to language skills. For example, there has been more publication of CSL research on learners' strategy use in listening and speaking in the Chinese-language publications than in English-language publications. Nevertheless, a few Chinese-language publications are seen to be replications of previous studies rather than creative, original work, and descriptions of the research methods used in these studies are often lacking in detail. According to Wu (2004), relevant research done in China has three main drawbacks: (a) there has yet to emerge a study of CSL deemed to be seminal in nature; (b) previous studies have been of limited scale, diminishing their status in the field; (c) as of yet there have been no systematic studies investigating strategies CSL learners employ in their language learning.

The English-language publications have called attention to the quality of research, as reflected in efforts to provide solid theoretical foundations for research initiatives, lengthy descriptions of data collection procedures, and sophisticated analysis of data. Unfortunately, most of the strategy research in these publications has focused primarily on Chinese character learning and reading strategy use. A lack of strategy research in areas relating to other language skills, learner variables, and the impact of different contexts is evident. Moreover, the existing publications are still somewhat limited in number, which would speak for the planning and execution of future studies to fill the gap.

Another interesting finding is that Chinese- and English-language publications on strategy research in CSL/CFL show that the two sets of scholars remain relatively isolated from one another. Chinese scholars primarily cite

publications in Chinese and refer only on a limited basis to English-language LLS resources. It is possible that many CSL researchers have little access to the relevant English-language books and journals. At the same time, English-language publications pay more attention to theories specific to the given research focus rather than to theories that apply to the field of LLS as a whole. Ke and Li (2011) tentatively explained that this was because English-language publications were in the areas with which they were more familiar.

Implications and Conclusions

This article has reviewed selected empirical studies on learning Chinese that have been published both in English and Chinese in an effort to identify major issues in CSL/CFL strategy research and suggestions for future research. A brief history of CSL/CFL strategy research has been outlined, the research foci presented, methodological issues discussed, major English and Chinese publications compared, and future research suggested.

Over its three decades of development as a field, CSL/CFL strategy research has increasingly caught the attention of researchers, and relevant studies have indeed enriched our understanding of the field. Yet there is considerable room for further development of this work. First, more work could be done in the area of how encounter with new vocabulary affects CSL/CFL readers' strategy use. It would be helpful, for example, for future research to describe the strategies that both CSL and CFL learners use to cope with different types of unknown vocabulary. Second, it would be beneficial to revisit the different research methods used in CSL/CFL strategy research, paying attention to the potential risks of using them that have been flagged in the general LLS literature. For example, self-designed inventories would need to be administered more widely in order to confirm their reliability and validity. Third, more than ever the findings from given strategy studies need to be published both in English- and Chinese-language publications in order to lend strength to each other rather than appearing in separate venues, read by separate readerships.

While existing CSL/CFL strategy research has undoubtedly provided insights into non-native speakers' Chinese language learning process, future CSL/CFL strategy research could nonetheless draw more attention to current LLS theories and practices. A holistic understanding of issues and trends of LLS can facilitate relevant CSL/CFL strategy research, both in terms of the standards employed and the potential impact of the studies. For example, future research could provide detail as to the specific difficulties that CSL/CFL learners encounter at different proficiency levels and the strategies that successful CSL/CFL learners use to cope with these encountered difficulties.

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