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Syntactic Priming in L2 Chinese: A Comprehensive Review of Influencing Factors

Lu Li

Zhejiang Normal University, Jinhua, China
Lilu0523@zjnu.edu.cn

Abstract. Syntactic priming—the reuse of a recently encountered sentence pattern—offers a practical window on how learners assemble form and meaning. Although the phenomenon is well documented for Indo-European languages, evidence for Chinese as a second language (CSL) is comparatively thin and uneven. This review synthesizes prior empirical work on CSL and traces how priming effects vary with learner proficiency, the complexity of target constructions, discourse position, and properties of input, including modality and frequency. Taken together, the studies suggest that priming is not a uniform boost: it scales with proficiency, interacts with constructional difficulty, and depends on where and how forms appear in context. Pedagogically, these patterns argue for proficiency-sensitive task design and for calibrating input modality and dose to consolidate specific structures rather than relying on generic practice. The review also points to gaps—limited observation in naturalistic settings and few designs that examine interactions among factors—that constrain broader claims. Extending research to ecologically richer environments and testing cross-factor dependencies would sharpen both theoretical accounts of CSL production and classroom applications.

Keywords: syntactic priming, Chinese as a second language, learner proficiency, input modality, frequency

1. Introduction

Syntactic priming—the tendency to reuse a recently processed sentence pattern—offers a compact way to observe how learners plan and assemble utterances. In Chinese as a second language (CSL) pedagogy, it is often invoked to explain why certain constructions become more accessible after exposure. The construct is also discussed as syntactic maintenance or structural priming [1,2].

Interest in priming spans psychology and linguistics. Researchers working with native speakers, cross-linguistic comparisons, and second-language populations have examined how word order, subject–object alignment, lexical overlap, and L2 proficiency modulate the effect [3]. Yet the empirical base remains skewed toward Indo-European languages such as English and German, with far fewer studies centered on CSL. Moreover, the relevant influences in L2 learners—proficiency, constructional complexity, discourse position, and properties of the input—tend to interact, making single-factor claims difficult to sustain.

To consolidate what is known in CSL, we queried the China National Knowledge Infrastructure (CNKI) using terms such as “syntactic priming effect” and “Chinese second language learners,”

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manually screened the results, and retained 15 empirical studies. These studies constitute the corpus for the present review and ground the discussion that follows.

2. Learner factors affecting syntactic priming

The language proficiency level of learners is one of the key factors affecting syntactic priming effects. Liu and Zhang found that learners with high language proficiency can extract and apply syntactic structures from the previous context more quickly and accurately in syntactic priming tasks, while learners with low language proficiency show a weaker syntactic priming effect [4]. This result indicates that learners with different levels of Chinese proficiency exhibit significant differences in their sensitivity to and response to syntactic priming. Further research shows that syntactic priming effects play different corrective roles among learners with varying language proficiency levels. Li points out that in the priming context, the number of correct sentence patterns produced by subjects significantly increases, and learners at the elementary level are more susceptible to syntactic priming compared to those at the intermediate and advanced levels, showing a stronger corrective effect [5]. This indicates that learners with lower language proficiency rely more on previous linguistic input in constructing syntactic structures, thus exhibiting a more significant corrective role in the syntactic priming effect.

From the perspective of the developmental stages of language proficiency, learners' language proficiency can be divided into three stages: elementary, intermediate, and advanced. Learners at the elementary stage are not yet proficient in mastering Chinese syntactic structures, so they rely more on previous input to construct sentences, making their response to syntactic priming effects more pronounced. Learners at the intermediate stage have mastered certain syntactic structures, but may not be flexible enough in applying complex syntactic structures, and their response to syntactic priming effects lies between those of learners at the elementary and advanced stages. Learners at the advanced stage are more flexible and proficient in applying syntactic structures, able to choose structures more flexibly according to context; therefore, their response to syntactic priming effects is relatively weak.

Additionally, the impact of language proficiency on syntactic priming effects is also reflected in learners' sensitivity to different syntactic structures. Learners at the elementary level may be more sensitive to simple syntactic structures, while learners at the advanced level can handle more complex syntactic structures [5]. This difference may lead to varying syntactic priming effects among learners at different levels when faced with different syntactic structures.

3. Linguistic factors affecting syntactic priming

Syntactic priming in CSL is conditioned by properties of the prime and by where the prime appears in discourse. Both dimensions shape how learners select and assemble subsequent structures. Section 3.1 focuses on the structure of the prime; Section 3.2 (below) considers discourse position.

3.1. Priming sentence structures

The configuration of the prime itself is a central determinant of priming magnitude. Lv and Yan show that both native Chinese speakers and L2 learners adapt their production after exposure to a structurally matched prime: once a complex pattern is processed, producers are more likely to reuse a similar configuration in the next utterance [6]. In short, structure matters.

Structural contrasts further modulate the effect. In comparisons of active and passive variants, the active pattern tends to be selected more readily during priming, yielding stronger carryover for L2 learners, whereas passive forms produce a weaker response [7]. A plausible explanation is mapping

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economy: active clauses align with canonical word order in Chinese, while passive expressions require additional operations and thus incur extra cost.

Polarity also plays a role. With affirmative vs. negative sentences, learners are more susceptible to priming in the affirmative case [8]. Negation not only reshapes syntactic scaffolding but also triggers additional semantic computation, which likely raises processing demands and dampens the priming gain.

Finally, complexity interacts with working-memory load. Complex sentences call for greater planning and resource allocation, conditions under which priming tends to attenuate. Simpler clauses, by contrast, impose lighter processing demands and therefore show more robust priming. Together, these patterns indicate that the prime's structure—voice, polarity, and complexity—jointly tunes the size and stability of syntactic priming in CSL.

3.2. Discourse position of the prime sentence

Priming effects also vary with where the prime appears in a passage. Using a tripartite division—beginning, middle, and end—Feng and Gao report that priming is weakest at the start of a text, peaks in the middle, and drops again toward the end for L2 Chinese readers [9]. One plausible account is resource allocation: opening sentences demand situation-building and goal setting, leaving fewer resources for reusing a newly processed structure. Mid-passage sentences coincide with sustained attention and stabilized context, conditions under which learners are most likely to carry over a primed configuration. By contrast, sentence processing near the end competes with retrospective integration and wrap-up, which raises processing load and attenuates priming. These patterns align with a "central" attentional peak under natural reading and indicate that discourse position systematically tunes priming outcomes in CSL.

4. Experimental task factors affecting priming

4.1. Input mode

The input mode has a significant impact on syntactic priming effects. Feng and Gao pointed out in their study that for Chinese second language learners, both sentence frequency and input mode work together to affect the priming effect [9]. When discussing the impact of visual input on syntactic priming effects, the study indicated that since visual input provides learners with more time to process and remember syntactic structures, second language learners are more sensitive to syntactic priming during reading. In contrast, when exploring the syntactic priming effects triggered by auditory input, researchers found that second language learners exhibit less pronounced syntactic priming effects when processing low-frequency sentence patterns. This phenomenon may be due to the greater time pressure associated with auditory input, which prevents learners from having sufficient time to process and remember syntactic structures. This suggests that second language learners extract different sentence information in discourse depending on the input mode, which in turn affects the syntactic priming effect in oral production. For example, differences in visual and auditory input modes may lead to varying syntactic priming effects in learners' sentence comprehension and production.

4.2. Input frequency

Frequency and repetition in the input systematically shape priming. In practice, lexical overlap can be treated as a high-frequency recurrence of particular items within the prime–target pair. Synthesizing 73 peer-reviewed studies, Mahowald extracted effect sizes across experimental contrasts and showed that input frequency robustly modulates priming magnitude [10]. When there

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is no lexical overlap, the occurrence of a primed structure is about 1.67× that of a non-primed baseline; with lexical overlap, the rate rises to 3.26×. This "lexical boost" aligns with accounts that posit residual activation and entrenchment: frequent forms are easier to retrieve, and repeated lexical cues further stabilize the mapping between lexicon and structure. Put simply, the more often a construction surfaces—and the more its words repeat—the more likely learners are to reuse it in subsequent production.

Across CSL studies, priming is shaped by learner proficiency, properties of the prime (voice, polarity, complexity), discourse position, and task design. These influences do not act in isolation: frequency effects are filtered through proficiency and processing load, while discourse position governs available attention. Future work should model such interactions explicitly—for example, testing whether lexical overlap offsets the weak-end "wrap-up" cost—or leverage them pedagogically by calibrating input dose and spacing to consolidate target constructions.

5. Conclusion

This article systematically explores the factors affecting the syntactic priming effect in Chinese as a second language learners. Through a comprehensive analysis of related factors, it reveals how these factors interact and collectively influence the language processing and acquisition processes of Chinese as a second language learners. The study found that learners' language proficiency, the complexity of syntactic structures, discourse position, input mode, and input frequency are all important factors affecting the syntactic priming effect. These findings not only deepen our theoretical understanding of the syntactic priming effect but also provide a solid theoretical foundation for the practice of teaching Chinese as a second language.

This review provides valuable practical insights for teaching Chinese as a second language. First, teachers should design teaching content and activities based on learners' language proficiency, ensuring that the difficulty of the content matches their language ability. Second, teachers should carefully combine input mode and input frequency during the teaching process. For example, language materials can be presented in various formats, such as visual and auditory inputs, to enhance learners' perception and memory of syntactic structures. At the same time, teachers can appropriately increase the input frequency of low-frequency sentence patterns to help learners better internalize and apply these syntactic structures. In addition, teachers can design diverse teaching tasks based on the characteristics of discourse positions. For example, at the beginning of a text, teachers should guide learners to focus on the structure and meaning of sentences; in the middle of a text, teachers should encourage learners to actively engage in language communication to improve their expressive language skills; at the end of a text, teachers can guide learners to review and summarize what they have learned to consolidate their understanding and memory of language knowledge.

However, previous studies still have certain limitations. First, most research has been based on laboratory experiments and quantitative analysis, with relatively limited examination of the syntactic priming effect in the natural language environment of learners. Future research could expand the research scenarios by incorporating natural language use situations to more comprehensively reveal the performance of the syntactic priming effect in actual language communication. Second, although various influencing factors have been considered, the interaction between these factors has not been thoroughly investigated. For example, the interaction between learners' language proficiency and input frequency, as well as the synergistic effect between discourse position and syntactic structure complexity, still require further research. Additionally, the diversity of research samples needs to be improved. Future studies could incorporate learners from different cultural backgrounds and age groups to enhance the universality and representativeness of the research findings.

In summary, research on syntactic priming effects is of great significance for understanding the language processing mechanisms of Chinese second language learners and optimizing the teaching

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of Chinese as a second language. Future research should deepen the exploration of factors affecting syntactic priming effects and their interactions, while integrating new research methods and technological advancements to continuously push forward research in this field. At the same time, teachers should flexibly apply teaching strategies based on the findings of this study to improve the effectiveness and quality of Chinese second language teaching, thus creating a more efficient ment for learners.

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