THE INFLUENCE OF WORD PREDICTABILITY ON CHARACTER CONSISTENCY EFFECT WHEN READING CHINESE SENTENCES

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The present study examined the effects of character consistency and word predictability on the Chinese lexical recognition process during natural reading. Chinese character consistency refers to the degree of orthography-to-phonology consistency in pronunciation among a group of characters that share the same phonetic radical. Previous studies had showed the consistency effect in naming and lexical decision tasks with isolated word presentation. The evidence of that high-consistency characters are named faster and more accurately than low-consistency characters suggests the involvement of phonological recoding during Chinese lexical processing. However, most reading materials in daily life are in the form of sentences. The eye-tracking studies of sentence reading have shown the influence of context on word recognition. Predictable words had shorter fixation times and higher skip rates than unpredictable words. It is the aim of the present study to investigate whether the contextual constraint for Chinese words would affect the orthography-to-phonology consistency processing of their constituted characters.

One experiment was conducted to manipulate the first character's consistency (high vs. low) of Chinese two-character word and its predictability (predictable vs. unpredictable) from the preceding sentence context. The target words were all low frequency words. In the experiment, 40 participants read 80 sentences and their eye movements were recorded. The results showed both the consistency and word predictability effects on gazed duration of target words. The consistency effect was in line with the previous studies demonstrating Chinese phonological processing at the sub-lexical level in the sentence reading task. The word predictability effect was also consistent with the literatures suggesting early involvement of contextual processing for Chinese word recognition. There was no interaction effect between consistency and word predictability. However, the consistency effect on gaze duration and refixation rate was marginal significant for unpredictable words but not for predictable words. A supplemental analysis was conducted to include word frequency as the third variable in the statistical models. The results showed a reliable word frequency effect and its interaction with consistency and word predictability, even the target words were all low frequency with a mean of 3.59 per million words. Moreover, the consistency effect was significant on gaze duration for unpredictable words but not for predictable words when the data of the relative high frequency words were excluded. The findings of the present experiment suggest an early influence of the contextual information on sub-lexical processing of word recognition when word frequency was taken into account.