

The effect of visual processing skills on Chinese literacy acquisition: evidence from L1 and L2 readers

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This study aims to investigate the fundamental cognitive factors that affect the acquisition of literacy in a logographic language, namely, Chinese, in participants with different levels of proficiency. In Experiment 1, we tested multiple cognitive abilities and Chinese literacy performance in beginning readers whose native language is Chinese. The results showed that visual perceptual skills and visual short-term memory, in addition to typical predicting factors (such as IQ, phonological awareness, and morphological awareness), had unique contribution to Chinese literacy acquisition. In Experiment 2, similar tests employed in Experiment 1 were administered to college students whose native language is also Chinese. The results indicated that the abilities related to visual processing no longer affected participants' efficiency of language processing after the literacy level is mature. In Experiment 3, we recruited foreign students whose native languages are alphabetic ones to be tested with the similar tests employed in Experiment 1 and 2. Among these L2 speakers of Chinese, the visual abilities did not affect the Chinese proficiency of the beginner group whose Chinese literacy was equal to or below the first grade. On the other hand, for the L2 learners whose Chinese literacy was about or better than the first grade, the visual abilities was found to affect their proficiency of Chinese even when the contribution from IQ and Chinese learning time was excluded. Taken together, these results suggest that visual processing skills contribute to literacy acquisition in Chinese learners with a basic but limited Chinese vocabulary size.