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Automatic Activation of Phonological Information during Handwritten Production of Chinese Characters

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Abstract: The present study investigated whether phonological information is activated automatically and, if so, how it affects handwritten production of Chinese characters. The form preparation paradigm was adopted. In the homogeneous blocks, target characters shared the first orthographic component and the pronunciation (Experiment 1), shared the first orthographic component only (Experiment 2), or shared the pronunciation only (Experiment 3). In the heterogeneous blocks, they shared neither orthographic component nor pronunciation. Handwritten response times show a significant preparation effect for shared orthographic component only (90 ms) and no preparation effect for shared pronunciation only. There was also a significant preparation effect for shared orthographic component and pronunciation, but the size of the effect was half of that for shared orthographic component only (45 ms). These results indicate that only the orthographic information is relevant for the handwriting of a Chinese character. Nonetheless, the phonological information can become activated automatically and interferes with production. It is suggested that the phonological interference takes place at the level of lexical selection, which is made more difficult by the automatic activation of homophonous non-targets.