How Neighbors Affect Self-Identification: Evidence From Chinese Character Reading

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Most Chinese characters are phonograms, consisting of a semantic radical and a phonetic radical. Some phonetic radicals create many phonograms to form a large neighborhood, while others don't. This study defined 'neighbors' as the characters that share the same phonetic radical to examine how neighborhood size (NS) (large versus small) and the presence of a high-frequency neighbor (HFN) affect Chinese character identification. I further subdivided target characters into consistent (CON) versus inconsistent (ICON) based on whether the phonetic radical provides a consistent cue of characters' pronunciation in the neighborhood. Students from middle and high school, representing low versus high reading levels, were asked to do the character identification task to measure reaction time. The data showed inhibitory HFN and NS effects in CON characters, regardless of reading levels. It suggests that reading Chinese characters would activate a set of neighbors that contain the same phonetic radical. Characters with larger NS or an HFN would encounter greater competition to slow down the character identification. However, only high school students showed the inhibitory NS effect in ICON characters. In other words, when the phonetic radical could not provide consistent pronunciation cues, more reading experience is required to show the NS effect. To apply these findings to design board games or apps for learning Chinese first or second language, one shall create a situation where learners can expose to characters that share the same phonetic radical and their pronunciations. Therefore, players could implicitly learn the radical-sound association during the interactive processes.

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