Abstract

Many research studies have shown that reading is associated with Mathematics learning, but many focused on reading on alphabetic orthographies rather than Chinese. As visual-spatial skill is crucial for both languages and mathematics learning, the present post-hoc study examined the relation between Chinese character reading and mathematics performances of Hong Kong Grade One to Grade Three student, and whether visual-spatial skill could uniquely explain the relation between the two areas. Data was collected from two different studies. In Study One, there were 345 Chinese Grade One to Grade Three (169 boys and 176 girls). There was significant correlation between Chinese single-character reading and mathematics performance. Visual-spatial skills explained 6% variance in Arithmetic skills and Chinese single-character reading explained 3% of Arithmetic skills after controlling visual-spatial skills. In Study Two, there were 68 (34 boys and 34 girls). There were strong correlations between Chinese word reading and most of the mathematics tasks except mental rotation. Visual-spatial ability explained 14%, 12% and 15% of the variance on arithmetic skills, strategic counting and number line estimation respectively. After controlling for visual-spatial ability, Chinese word reading explained an extra 6% of the variance in the three tasks related to mathematics performances. Findings shed light on the general importance of visual-spatial skill in Chinese single-character reading, word reading, arithmetic skill, strategic counting and number line estimation, and visual-spatial skill plays an important role in Chinese character reading and mathematics performance.

Keywords: Visual-spatial skills, Chinese character reading, Mathematics performances