

Children rely on gestures more when the set size of countable items increase

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Abstract

Research suggests that gestures are crucial in conveying numerical information, particularly during counting tasks involving larger set sizes (Gunderson et al., 2015; Gibson et al., 2018). Besides, children's understanding of numbers develops in stages, with significant milestones around four and five years old (e.g., cardinality). However, the use of gestures by preschoolers during counting tasks, especially with higher set sizes, remains poorly understood. Data were collected from 59 children (Mage = 4;6, 26 girls) who placed beads onto a stick matching dotted cards (1-9) in video-recorded sessions for later gesture coding. Glmer analysis revealed that higher set sizes (4 to 9) correspond to increased gesture use ($p < .001$). In contrast, set sizes negatively relate to counting accuracy ($p < .001$). However, gesture use did not significantly relate to counting accuracy ($p = 0.74$). Our findings indicate that gestures are essential to children's numerical understanding regardless of accuracy, particularly when tackling tasks beyond their comprehension level.