Multisensory stimuli improve numerical matching abilities of preschool children

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Abstract: We previously showed that giving young infants synchronous, multisensory information about number increases the precision of their numerical discriminations. Does intersensory redundancy also facilitate numerical learning in older children? Twenty-four preschool children (3-5 years) played a number matching game on a touch-screen computer. On each trial, children counted a sample numerosity whose elements were presented serially. On some trials, the sample was visual, on some auditory, while on still others audiovisual. Children were then presented with two choices and asked to touch the numerically matching array. Data support the idea that intersensory redundancy improves children's numerical estimations. Multisensory information may be more salient than unimodal information, which could better recruit attention and result in more precise learning and remembering than when such information is presented to only one modality. Results should spur future research into whether such multisensory facilitation can be harnessed for educational benefit in the early mathematics classroom.