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Imagine All the Possibilities: Toddlers Adapt to Alternative Outcomes

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Abstract

We examined whether 2- and 3-year-old children flexibly adjust their actions to the probability structure of the task, and whether this adaptiveness differs across types of uncertainty. Children encountered Uniform and Skewed conditions, in which outcomes were equally likely across four locations, and were constrained to a single location, respectively. Children chose between constraint-seeking actions that address multiple possibilities and hypothesis-scanning actions that target a single outcome, across two conditions and two tasks that tap into different uncertainty types (epistemic and physical). Across ages and tasks, children systematically adapted their action choices to the underlying probability structure, selecting constraint-seeking actions more often in the Uniform condition and hypothesis-scanning actions more often in the Skewed condition. However, age and uncertainty type modulated children's success in correctly implementing these actions, suggesting that the developmental challenges lie in coordinating those actions with task-specific demands and forms of uncertainty.