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Reasoning About Specific Relations Versus General Associations Shows Protracted Development Throughout Adolescence

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Abstract

Successful reasoning requires the integration of multiple pieces of sometimes complex information. Past work has shown that children and even adolescents struggle with reasoning, but it remains unclear whether this is due to the demand for integration or rather informational complexity. Here, children (aged 6-11 years), adolescents (12-17), and adults (18-29; N=67) were presented with relations among pairs of coloured balls and judged whether one target relation was valid given four premises. Problems varied in the number (one vs. two) and complexity (general associations vs. specific orderings) of relevant premises. Across problem types, children performed worse than adults. In contrast, adolescents showed a larger accuracy cost particularly on decisions that required consideration of specific versus general relations, independent of relation quantity. These findings suggest that prior reports of an adolescent-specific reasoning “dip” may stem from difficulty considering complex relations, regardless of the demand for integration.