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Understanding developmental bottlenecks in active inquiry

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Abstract: This project explores how the ability to ask informative questions changes during development. We hypothesized an intrinsic link between the ability to update beliefs given evidence and the ability to ask informative questions. To study the developmental trajectory of this behavior, five to ten-year-old children played an iPad game asking them to identify a hidden bug. Learners could either ask about individual bugs, or make a series of feature queries (e.g., “Does the hidden bug have antenna?”) that more efficiently narrow the hypothesis space. The iPad display either assisted children with updating their beliefs or required them to update themselves. We analyze the relationship between belief updating and information seeking behavior as a function of age, along with how their strategies for acquiring information change. The broader context of the work is to better understand how to structure informal science exhibits in ways that are developmentally appropriate.