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Dear Dr. Raikhel,

We would like you to consider our manuscript entitled “Searching for rewards like a child means less generalization and more directed exploration” for publication as a Research Report in *PNAS*.

One of the great mysteries of human intelligence is the rapid rate of learning displayed during childhood. Whereas previous work has found extensive variability in the sampling behavior of children, the computational mechanisms underlying these developmental differences are not well-understood. Three different hypotheses have arisen to explain these differences, describing children as either sampling more randomly, as generalizing more narrowly, or as seeking out uncertainty more eagerly.

Using behavioral and computational modeling results, we test these theories using a paradigm combining generalization and search together with a model whose parameters uniquely correspond to each of the postulated mechanisms. Our results show that children generalize more narrowly and explore uncertain options more eagerly, but crucially, they do not simply explore more randomly than adults. Our results therefore cast children decision makers—not as prone to erroneous and noisy behavior—but as agents who are hungry for information in their environment. This report should be exciting to anyone interested in learning and decision making research, in particular to developmental psychologists, neuroscientists, cognitive scientists and artificial intelligence researchers.

If it is helpful when selecting reviewers, qualified individuals include Alison Gopnik (psychologist working on developmental differences in learning and hypothesis testing), Jacqueline Gottlieb (a neuroscientist working on information search), Leah Somerville (developmental neuroscientist), Sarah-Jayne Blakemore (cognitive neuroscientist), Celeste Kidd (developmental psychologist), and Stefano Palminteri (expert in Bayesian models of reinforcement learning). Editorial Board members with relevant expertise include Susan Gelman, Adrian Raftery, and Michael Gazzaniga, while members of the National Academy of Sciences working in areas related to our contribution include Elizabeth Spelke, Susan Carey, and Richard Shiffrin.

In addition to being of broad interest, our results are also very robust across a variety of manipulations and validity checks. Indeed, we encourage you to have a look at the Supporting Information as we strongly believe that psychological studies are rarely ever executed with a similar level of scientific rigor as we have applied here. Yet all our analyses and model checks converge clearly on the same interpretation. This is a rare report that is of broad interest, rich with implications, and communicates them in a readily digestible format. For these reasons, we believe this contribution belongs in *PNAS*.

Thanks for your consideration, and we are looking forward to hearing from you.

Sincerely,

Eric Schulz

Charley M. Wu

Azzurra Ruggeri

Björn Meder