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# **Surprisingly unsurprising! Infants looks to probable vs. improbable events is modulated by others expressions of surprise**

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## **Abstract**

Research in diverse disciplines suggests that agents own prediction errors enhance their learning. Yet, human learners also possess powerful capacities to learn from others. Here we ask whether infants can use others expressions of surprise as vicarious prediction error signals to infer hidden states of the world. First, we conceptually replicated Xu & Garcia (2008), showing that infants (12.0-17.9 months) looked longer at improbable than probable sampling outcomes (Experiment 1). Then we added emotional cues to the design (Experiment 2). Before revealing an outcome to an infant, the experimenter looked at the outcome and expressed either happiness or surprise. While infants still looked longer at the improbable than the probable outcome following the experimenters happy expression, this trend was reversed when the experimenter had expressed surprise at the outcome. Such early-emerging ability to use others surprise as vicarious prediction error may guide infants own learning about the world. Preprint:<https://psyarxiv.com/8whuv>