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Simultaneous Prediction and Reaction in Sequence Learning

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Abstract: Prediction, in its simplest meaning, is a claim that a certain event will happen in the future. Reaction, in contrast, is a response from some eliciting event. We look at the concepts through an online reaction-time game. Thirty-three participants rapidly clicked on circles appearing on different corners of the computer screen according to statistical regularities. Although a reactive strategy was dominant, a mixed predictive/reactive mode began to emerge towards the task's conclusion. We hypothesize that through extensive exposure to sequences, participants were quicker to interchange between the two stable modes, potentially yielding an optimal predictive/reactive mode. Additionally, a predictive strategy aided in recall test. Results suggest that processes underlying basic sensorimotor sequencing are both predictive and reactive, interleaving by task context and training. Our findings provide insight into the nature of prediction and reaction as mental processes and also allow us to explore how strategy manifests in low-level cognitive tasks.