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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

<https://escholarship.org/uc/item/0jh820xj>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 31(31)

ISSN

1069-7977

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Publication Date

2009

Peer reviewed

What our eyes can tell us about how an insight emerges?

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Abstract: Metcalfe & Wiebe (1987) demonstrated that problem solvers do not make reliable predictions about their performance on insight problems. We are interested in detecting the temporal emergence of insight (aka Aha!) using methods other than self-report. This study monitored pupillary motility and eyeblinks to track cognitive function during noninsight and insight problem solving of Matchstick Arithmetic problems. As predicted, data suggested that shortly before an Aha! solution for an insight problem, patterns of pupil dilation and eyeblinks were different from those observed during a noninsight problem. An acute peak of pupillary dilation is observed at the time of Aha! solution, and lower eyeblink frequency was observed before and after the insight moment. Results may reflect problem-type differences in any of cognitive load, arousal, task strategies, or search heuristics preceding solution of insight and non-insight problems.