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Aha! Under Pressure: Is the Aha! Experience Constrained by Cognitive Load?

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Abstract

Suddenly comprehending the solution to a vexing problem is often accompanied by an Aha! experience. The driving mechanisms behind this experience are unclear. One way to address this, is to study Aha! under cognitive load. If Aha! is the result of the same explicit process that we use to solve everyday problems, it should be influenced by cognitive load in a similar way. However, if it constitutes a different, more implicit process, cognitive load might not affect it at all. Using a dual-task paradigm where participants solved word puzzles under different memory loads, we found that word puzzles solved with Aha! were more accurate and led to higher solution confidence. When memory load increased, only puzzles without Aha! were solved more slowly. The fact that solution retrieval with Aha! was unaffected by memory load, implies that Aha! experiences rely on a process that does not compete for limited cognitive resources.