

# Effects of unrecognized hints and metacognitive control in insight problem solving

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**Abstract:** Unconscious cognition plays an important role in solving insight problems. Metacognition is also known to be effective in enhancing creative thinking. Little is known, however, about how unconscious thought and metacognition interact. The current study first examined whether a hint that could not be consciously perceived has an effect on facilitating problem solving (Experiment 1). 102 participants tried to solve the nine-dot problem; half of them after exposure to a subliminal hint. The hint doubled the solution rate. Experiment 2 examined how this effect interacted with metacognitive instructions. 146 participants solved the same problem under one of four conditions defined by crossing exposure or nonexposure to a subliminal hint with metacognitive control instructions present or absent. The hint raised the solution rate and so did metacognition, but the effect almost disappeared when both were introduced. The results suggest that metacognitive control sometimes operates without monitoring.