



Where creativity resides: The generative power of unconscious thought [☆]

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Abstract

In three experiments, the relation between different modes of thought and the generation of “creative” and original ideas was investigated. Participants were asked to generate items according to a specific instruction (e.g., generate place names starting with an “A”). They either did so immediately after receiving the instruction, or after a few minutes of conscious thought, or after a few minutes of distraction during which “unconscious thought” was hypothesized to take place. Throughout the experiments, the items participants listed under “unconscious thought” conditions were more original. It was concluded that whereas conscious thought may be focused and convergent, unconscious thought may be more associative and divergent.

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1. Introduction

Creativity has long been associated with the labor of the unconscious mind. Nobel laureates and famous artists, when probed to introspect on the process leading to their discoveries or

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creations, often emphasize the crucial role of the unconscious. The importance of some conscious activity notwithstanding, it is the unconscious that at some point produces the truly “creative” or unique thought. It seems that unique insights often result from a process whereby some initial conscious thought is followed by a period during which the problem is put to rest. Subsequently, after this period without conscious thought, a solution or idea presents itself. This stage during which one refrains from conscious thought and during which the unconscious is at work, is called incubation.

The goal of the present paper is to shed light on the relation between incubation and creativity. Creativity is a broad term and it should be noted that we do not use it to refer to all the intricacies of stellar achievements of geniuses such as Mozart or Einstein. Rather, we focus on one aspect of creativity: the generation of new and original thoughts. People do associate creativity with thinking the non-obvious and the original, and we hypothesize that such non-obvious or original thoughts are more likely to be elicited by incubation than by focused, conscious thought.

Whereas the anecdotal evidence for incubation is both spectacular and abundant (Claxton, 1997; Ghiselin, 1952; Koestler, 1964; Schooler & Melcher, 1995), for a long time incubation was hard to establish in the psychological laboratory. Moreover, the few scientific demonstrations that became available over the years were often hard to replicate (see Olton, 1979; for an early review). Part of the problem may have been that researchers investigating incubation usually used so-called insight problems. Such problems have only one specific and often counterintuitive solution, causing a “Eureka experience” once found. The choice for the use of such problems is understandable, as a sizeable portion of creative ideas that occur in real life are often characterized by such sudden insights. However, solutions to insight problems are sometimes very hard to find (true needles in haystacks, see Dijksterhuis, 2004) and the difficulty to obtain sound evidence may have been caused by the fact that the period of incubation experimental participants are given in a lab experiment is often very short compared to real life creativity. After all, sometimes creativity can take months or even years.

Still, in the past 15 years some evidence for incubation has been found (e.g., Bowers, Regehr, Balthazard, & Parker, 1990; Smith & Blankenship, 1989). Smith and Blankenship (1989) for instance, gave their participants various insight problems to solve. Some were quickly solved by the participants whereas others were not. Giving participants an immediate second go at the unsolved problems did not help. However, after a delay during which they were distracted and could not attend to the problems, participants’ performance improved. The reason distraction helped is that participants were given some misleading cues at the outset and distraction helped them forget these misleading cues.

Schooler and Melcher (1995) reviewed the literature on incubation and concluded that distraction can lead to “set-shifting.” People often approach a problem with the use of wrong cues, wrong heuristics, and/or wrong information. A period of distraction makes that such wrong approaches become less accessible or are forgotten altogether. The effects of distraction on a change of mental set can be both strong (such as when one tries to solve a chess problem and initially gets truly “fixed” in thinking along a wrong line) and fairly subtle (such as when distraction attenuates the biasing influence of primacy or recency effects). Such processes can be grouped under the umbrella of the “a fresh look” explanation: putting a problem aside for a while allows for a fresh, unbiased new start.

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