



The Creative Brain: The Science of Genius

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A dictionary definition of creativity is “the ability to use the imagination to develop new and original ideas or things” (Encarta Dictionary, 1999, p. 423). The nature and process of creativity, the characteristics of extraordinarily creative people, and how creativity can be fostered are the primary topics addressed in this book. The author appears to have unique credentials for investigating creativity. After obtaining a Ph.D. in Renaissance English literature and spending five years as an English professor, she went on to earn an M.D. degree and become a psychiatrist and neuroscientist.

In the first chapter, the author identifies originality, utility, and the development of some type of product as the essential components of creativity. The second chapter is devoted to looking at the creative process and characteristics of creative people. The author presents quotations from very creative persons (playwright Neil Simon, musicians Mozart and Tchaikovsky, mathematician Henri Poincaré, chemist Friedrich Kekulé, and poet Stephen Spender) talking about how they experienced periods of creativity. She observes commonalities despite the variety of fields represented:

“Thought often moves swiftly and multi-dimensionally. The solution occurs in a flash. It may occur after a ‘rest period,’ during which ideas lie fallow, and then suddenly take root and sprout. It is experienced as ‘inspiration’....” (p. 48)

Characteristics often found in the personalities of highly creative individuals include not having

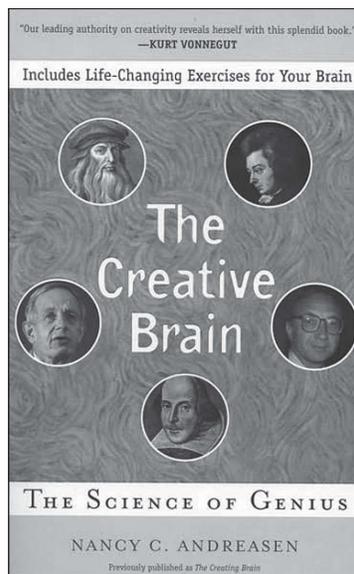
preconceived notions, enjoying adventure, being rebellious and individualistic, having high levels of sensitivity and playfulness, being persistent, having deep curiosity, showing single mindedness, and having a tolerance for ambiguity.

In the third chapter, the author gives an overview of brain anatomy and brain networks, and relates that to human thought and creativity. She suggests that areas of association cortex are important in creativity. She hypothesizes that

“... during the creative process the brain begins by disorganizing, making links between shadowy forms of objects or symbols or words or remembered experiences that have not previously been linked. Out of this disorganization, self-organization eventually emerges and takes over in the brain. The result is a completely new and original thing: a mathematical function, a symphony, or a poem.” (p. 78)

In chapter 4, studies showing that highly creative people are more prone to mental illness are discussed. One suggested link is that the personality of highly creative people may make them unconventional, less likely to respond to authority, and more apt to have an inner world filled with ambiguity. The very personality characteristics that make them more creative may lead to depression, mania, or other mental illnesses. The author also hypothesizes that highly creative people can be overwhelmed by a heightened sensitivity to the senses that they might possess, and that they may in turn suffer from mental illnesses that are episodic in nature.

Chapter 5 is entitled “What Creates the Creative Brain?” Certain environmental components encourage the development of extraordinary creativity. Renaissance Florence, and two persons in particular, Leonardo da Vinci and Michelangelo Buonarroti,



are used to demonstrate factors important in the flowering of creativity. Elements of the environment that nurture creativity are freedom and novelty, a sense of being at the forefront of new developments, a critical mass of creative people, a free and fairly competitive atmosphere, mentors and patrons, and economic prosperity.

The sixth and final chapter examines how greater creativity can be encouraged. The author notes that some aspects of the modern world are not conducive to creativity:

“Visual input from TV and film is totally passive... A child who reads a book... is learning to visualize and imagine for herself.” (p. 152)

The author suggests that studies showing plasticity of the brain support the importance of the environment in the development of creativity. An example given of the plasticity of the brain is that some brain areas are larger in musicians than in non-musicians and that musicians have better visual/spatial ability as assessed by the Judgment of Line Orientation test.

The author proposes that mental exercises can improve creativity. For adults these exercises include exploring a new and unfamiliar area of knowledge, practicing meditation or spending some time “just thinking” (a state called random episodic silent thought by the author), practicing skills of observation and description, and working on imagination abilities. The author suggests that things to do to encourage creativity in small children include turn off the TV, read interactively with them, emphasize a diversity of toys and books, teach them to ask questions, encourage observation of the natural world in the outdoors, and involve them in music. Readers who seek insights and theories on the creative process and on means of encouraging creativity will be interested in this book, although optometric readers may find themselves wishing the author had expounded further on the roles of visualization and visual information processing in creativity.

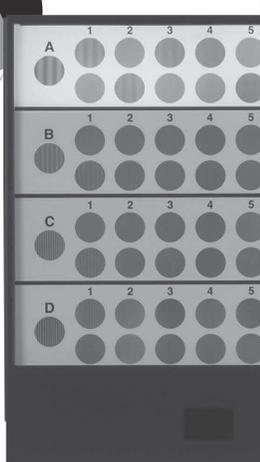
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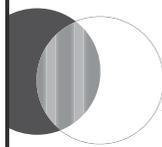
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