

CREATIVITY: FROM POTENTIAL TO REALIZATION

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American Psychological Association, 2004

- Creativity is the ability to produce work that is novel (i.e. original, unexpected), high in quality, and appropriate (i.e. useful, meets task constraints). (Sternberg, Kaufman, Pretz, 2002)
- The fact that versatile geniuses are so rare could easily be explained by the ten year rule – the fact that it takes many years of preparation before even the most noteworthy and talented individuals can reach the level of competence necessary to achieve true excellence in any domain. These ten-plus years are typically spent in deliberate practice and the development of expert performance. – and this is just the time needed to prepare oneself for the kind of paradigm-shifting creative work that may one day come to be acknowledged as the work of genius. The actual creative work follows this period.
- Personal creativity is manifested in the intentions and motivation to transform the objective world into original interpretations, coupled with the ability to decide when this is useful and when it is not.
- Creativity can be defined as the capacity to produce novel, original work that fits with task constraints (Lubart, 1994).
- According to Amabile (1996), there are three components for creativity: domain-relevant skills, creativity-relevant processes, and task motivation. Domain-relevant skills include knowledge, technical skills, and special talents relevant to the task domain. Creativity-relevant processes include a cognitive style that facilitates coping with complexity and breaking one's mental set during problem solving, the use of heuristics for generating novel ideas (i.e. Trying a counterintuitive idea when stuck on a problem), and a work style characterized in part by persistence and sustained attention to a task. Task motivation involves an individual's reasons for engaging in a task and the person's attitude toward the task to be accomplished. Intrinsic motivation, considered important for creativity, arises from inherent qualities of a task such as the challenge that the task offers. Extrinsic motivation, which arises from sources exterior to the task (such as a reward for task completion), tends to have a negative influence on creativity.
- For thinking styles, a preference for thinking in novel ways of one's own choosing and a preference for working with the big picture rather than the details are considered important for creativity.
- Creativity-relevant personality attributes include perseverance, willingness to take risks, willingness to tolerate ambiguity, openness to new experiences and individuality.
- There may be thresholds for some components (e.g. knowledge) below which creativity is not possible, regardless of an individual's level on the other components.
- Partial compensation may occur between the components in which strength on one component (e.g. motivation) may counteract weakness on another component (e.g. knowledge). Although each component contributes in its own way to creativity, a component is always acting in the presence of other components and this coaction can lead to interactive effects. For example, high levels on both intelligence and motivation could multiplicatively enhance creativity.
- A study by Gray (1966) examined 2400 historically eminent creative people and found that only 2% showed creative accomplishments in diverse domains, such as art and literature.
- Children from families with flexible rules tend to have greater creativity than children from families with rigid rules, regardless of socioeconomic level.

- Children are increasingly risk averse with age, which is smart for getting good grades in school. In line with the investment approach to creativity, many people are not creative because they are unwilling to pursue unknown or little valued ideas, they do not want to take a risk and “buy low.” Being creative is, in part, a philosophy of life, which is acquired through childhood experiences.
- Given the somewhat specific nature of creativity, the most effective creativity training programs will be those tailored to enhance creativity in a specific domain, and even better in a specific task. A complete training program would seek to enhance all components involved in creativity (both cognitive and non-cognitive ones). Additionally, creativity training could be tailored to each person after determining which components are not at their optimal level for the individual given the requirements for being creative in a specific task. Training includes teaching people which kinds of thinking are important during one phase of a task and which are important during a later phase of a task.
- Most every researcher who studies creativity agrees that two criteria are necessary and neither alone is sufficient: novelty and usefulness. Usefulness, of course, is not meant in merely the pragmatic sense but rather in the broader sense that incorporates aesthetic, technical, literary, scientific, and economic usefulness, to name just a few of the major categories.
- Creative talent is expressed in each evolved implicit domain and is specific to its domain rather than general. In other words, there are seven distinct domains of creative talent, with three involving science, one involving math and three involving art. The scientific domains of creative talent are the physical sciences, the biological sciences and the social sciences. The artistic domains of creative talent are literature, the visual arts, and music.
- Physical scientists may have temperaments that orient them away from the social and toward the inanimate; their interest and ability in science is then just one expression of this orientation. Autistic children are more than twice as likely as non-autistic children to have a father or grandfather who was an engineer.
- Creative behavior is stochastic. According to the dictionary definition, something is stochastic if it is characterized by conjecture; conjectural, involving or containing a random variable or variables or involving chance or probability. In other words, to claim that creativity is stochastic is to assert that it entails much more uncertainty and unpredictability than would be expected from a forthright, rational process. At the same time, to hold that creativity is stochastic is not tantamount to the assertion that it is totally random, and therefore capricious and illogical. On the contrary, I argue that creativity has the characteristics of constrained stochastic behavior. Creativity is to a certain degree predictable, but far from deterministic.
- Some creators have left introspective reports about the mental processes that led to their creations. The introspections are replete with references to free association, trial and error, vague hunches, analogical and metaphorical thinking, playful exploration, diverse thinking and other unpredictable and logically unjustifiable activities. Naturally, such reports cannot be considered hard, scientific data. But at least they show that the claim that creativity is stochastic is not inconsistent with what creators themselves say about their thought processes.
- Creativity is the interplay between ability and process by which an individual or group produces an outcome or product that is both novel and useful as defined within some social context. (Plucker and Beghetto)