Artists and scientists throughout history have remarked on the bliss that accompanies a sudden creative insight. Einstein described his realization of the general theory of relativity as the happiest moment of his life. More poetically, Virginia Woolf once observed, “Odd
how the creative power brings the whole universe at once to order.”

But what about before such moments of creative insight? What emotions actually fuel creativity?

The long-standing view in psychology is that positive emotions are conducive to creativity because they broaden the mind, whereas negative emotions are detrimental to creativity because they narrow one’s focus. But this view is too simplistic for a number of reasons.

It’s true that attentional focus does have important effects on creative thinking: a broad scope of attention is associated with the free-floating colliding of ideas, and a narrow scope of attention is more conducive to linear, step-by-step goal attainment. However, emerging research suggests that the positive vs. negative emotions distinction may not be the most important contrast for understanding attentional focus. Over the past seven years, research conducted by psychologist Eddie Harmon-Jones and his colleagues suggests that the critical variable influencing one’s scope of attention is not emotional valence (positive vs. negative emotions) but motivational intensity, or how strongly you feel compelled to either approach or avoid something. For example, pleasant is a positive emotion, but it has low motivational intensity. In contrast, desire is a positive emotion with high motivational intensity.

The researchers showed participants funny video clips of cats (triggering emotions of low motivational intensity) and clips of delicious-looking desserts (bringing out high motivational intensity). Even though both evoked positive emotions, the cat videos, which were simply amusing, broadened the mind (measured by subjects making more holistic matches to a target stimulus), whereas the dessert clips that carried higher motivational intensity narrowed subjects’ scope of attention (subjects made more detail-oriented matches to a target stimulus). And it was similar when looking at video clips that tapped
into negative emotions: sadness (a state of low motivational intensity) broadened attentional focus, whereas disgust (a state of high motivational intensity for avoidance) narrowed focus.

Motivational intensity, they concluded, was a more important variable affecting scope of attention than the mere experience of positive or negative emotions. Presumably, this is because low motivational states facilitate the search for new goals to pursue, whereas high motivational states focus us on completing a specific goal. So next time you want to keep an open mind and see the big picture, it’s probably best if you’re just in a pleasant (or even sad) mood. If you are too passionate about the activity, you may miss the forest for the trees. If, however, you really need to buckle down and focus on making a new idea practical, high motivational intensity can be just the ticket.

At the end of the day, the ability to broaden attention and the ability to narrow attention are both key contributors to creativity. A recent neuroscience study led by Roger Beaty (and which I was a collaborator on) suggests that creative people have greater connections between two areas of the brain that are typically at odds: the brain network of regions associated with focus and attentional control, and the brain network of regions associated with imagination and spontaneity. Indeed, the entire creative process—not just the moments of deep insight— involves states of euphoria and inspiration as well as states of calm, rational focus. Creative people aren’t characterized by any one of these states alone; they are characterized by their adaptability and their ability to mix seemingly incompatible states of being depending on the task, whether it’s open attention with a focused drive, mindfulness with daydreaming, intuition with rationality, intense rebelliousness with respect for tradition, etc. In other words, creative people have messy minds.
Other research has also found that people who reported experiencing extreme or intense emotions on a regular basis scored higher on measures of creative capacity than those who simply reported feeling positive or negative emotions. There’s something about living life with passion and intensity, including the full depth of human experience, that is conducive to creativity. In my own research, I found that “affective engagement”—the extent to which people are open to the full breadth and depth of their emotions—was a better predictor of artistic creativity than IQ or intellectual engagement.

We are also rarely purely happy or purely sad—we tend to experience mixed emotions. Research scientist Christina Fong at Carnegie Mellon University has investigated the effects of “emotional ambivalence”—the simultaneous experience of positive and negative emotions—on creativity. Fong’s research suggests that simultaneously experiencing multiple emotions that are not typically experienced together (e.g., excitement and frustration) signals “that one is in an unusual environment where other unusual relationships might also exist.” This increased sensitivity to unusual associations is another important contributor to creativity.

Prior research hints at some situations that tend to increase emotional ambivalence: Women who are in higher-status positions report greater emotional ambivalence than women in lower-status positions, and when people are engaged in organizational recruitment and socialization, they report higher levels of emotional ambivalence. Fong suggests that perhaps managers “would benefit from scheduling creative thinking tasks for these time periods or could assign creativity tasks to new organizational members (who are likely undergoing socialization processes).” In other words, it may be during these moments of high emotional ambivalence when the emotions of employees are ripe for creativity.
Fong’s research also suggests that emotional ambivalence and the unusualness of one’s environment may go hand in hand—and that employees who believe they are in an unusual environment can show increased creative thinking. Highly innovative companies such as Disney and IDEO are well aware of this, as their employees benefit from such unusual working environments. IDEO’s workplace in Palo Alto, California has airplanes and bicycles suspended from the ceiling, plastic beaded curtains used as doors, and Christmas tree lights on display all year round. Everywhere you go are toys, gadgets, and prototypes from past projects. Indeed, multiple psychological studies suggest that a crucial trigger of creativity is the experience of unusual and unexpected events. Unexpected events can certainly mix emotions, and mixed emotions, as Fong as shown, can increase sensitivity to unusual associations and ideas.

Taken together, the latest research on the role of emotions in creativity suggests that instead of focusing exclusively on bringing out positive emotions among employees — or attempting to dispel negative emotions — managers may want to consider additional factors, such as whether the environment brings out emotional ambivalence (Is the environment unusual? Will it tap into a wide range of seemingly contradictory emotions?) and motivational intensity (Will it broaden or narrow someone’s focus?) when trying to stimulate creativity. It’s time to move beyond such simplistic black-and-white notions of the role of emotions in innovation, and instead embrace the inherent messiness of the creative process.

Author’s note: Thanks to Adam Grant for bringing many of these studies to my attention.
Scott Barry Kaufman is scientific director of the Imagination Institute in the Positive Psychology Center at the University of Pennsylvania. He is author of *Ungifted: Intelligence Redefined* and co-author of the upcoming book *Wired to Create: Unraveling the Mysteries of the Creative Mind* (with Carolyn Gregoire). Kaufman is also co-founder of The Creativity Post and he hosts The Psychology Podcast.

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Sara Jacobovici 31 minutes ago

Thank you Scott Barry Kaufman for a thought provoking article. You’re right, it is time to move from the black and white to the full color spectrum of creativity. Also, it’s so important to adapt creativity to the work environment. Meanwhile, I would like to highlight two aspects of creativity that is innate in all of us; imagination, the key factor in creativity, and being in different states or altered states of consciousness. This is different from emotional creativity and attention. Sometimes creativity just happens, that's what inspiration is all about.
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