

UC Berkeley

Berkeley Scientific Journal

Title

To Be or Not To Be

Permalink

<https://escholarship.org/uc/item/2dv0t85q>

Journal

Berkeley Scientific Journal, 15(1)

ISSN

1097-0967

Author

Amin, Aakash

Publication Date

2012

DOI

10.5070/BS3151012134

Copyright Information

Copyright 2012 by the author(s). All rights reserved unless otherwise indicated. Contact the author(s) for any necessary permissions. Learn more at <https://escholarship.org/terms>

Undergraduate

TO BE OR NOT TO BE

Aakash Amin

B S J

As *Homo sapiens*, our species often has trouble finding a balance between its identity as an evolutionary mammal and as an infinitely complex and conscious thinker. A great amount of personal tension arises from the banality of over-thinking a situation, which often results in avoidance of risk. Other times we simply react on impulse, foregoing conscious interpretation of a situation. Granted, human beings are living creatures that biologically respond to environmental changes with or without conscious awareness in order to maintain their innate animalistic drive to survive.

A person's conscience is so, well, personal that truly knowing someone other than yourself is impossible. However, understanding another person is logically more plausible since the inevitability of misunderstanding on the part of the investigator is implicitly admitted to. This understanding is developed by profound introspection that allows us to correlate our identities to that of others. We observe our behaviors and subsequently decipher the motivations that may have produced them, and then use this logic to analyze other people's behavior in terms of their own intimate emotions. If emotions are broadly defined as complex psychophysiological experiences that depend on a person's state-of-mind, then they can only be arbitrarily quantified. Thus, observational data falls short because some people don't cringe when they get burned and some people don't laugh when they fall. This independence from stereotypes, or individuality, allows each person to maintain an identity of his or her choosing regardless of others' perception or will. The question remains, however: What are the implications of this emotional autonomy on an individual's self-perception in societal contexts?

In spite of this mysticism that surrounds the nature of emotions, generalities can be made to describe emotions biological terms. The process begins, for instance, with the limbic system, a group of structures spanning both cerebral hemispheres whose functions are more or less coordinated to extract external stimuli and translate them into emotional output. "[The limbic system] appears to be primarily responsible for our emotional life, and [vastly contributes to the] formation of [emotional] memories," which are processed by the amygdala. The amygdala is so

pivotal to emotional reactions that surgical removal of the amygdala renders an animal indifferent to stimuli and unable to experience neither fear nor arousal. (Boeree) Moreover, in a study testing the affects on the emotional circuitry of a lactating rat facing an intruder that threatens her pups found that such a scenario vigorously activates classic limbic regions. The degree of neural activity in these areas presented a pattern that "may precede behavioral states upon which lactating females initiate attacks against a potential threat to offspring." (Nephew, et al.) In other words, internal biological changes precede observable emotional responses that are typically expected, such as a mother's aggressiveness towards a threat to her own ultimate survival. Physiological changes are, thus, subconsciously motivated by mother-offspring bond – among numerous other relationships – in order to elicit an emotional response.

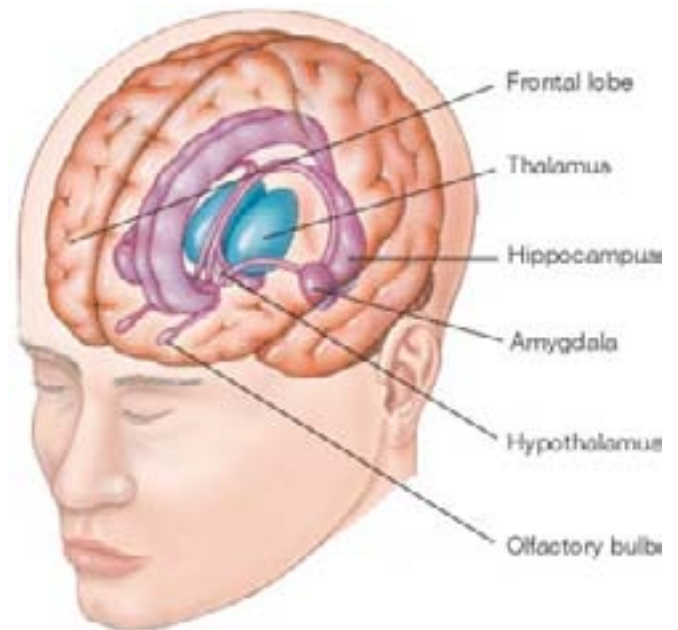


Figure 1. The limbic system of *Homo sapiens*.

Despite the firm biological grasp that these studies attribute to the evocation of emotions, it is inaccurate to use laboratory animals as a reflection of

how all mammals, especially humans, react to stimuli. This can be explained from an evolutionary standpoint since the brain has evolved from an intermediary brain, or paleopallium that contains the limbic system, to a more complex, rationalizing brain in higher order mammals. The paleopallium is maintained in these higher order mammals for its life-preserving functions such as reflex actions and breathing, but its emotional significance has diminished with the advent of structures like the neocortex that can analyze and further process the limbic system's activity. Not surprisingly, "humans display the largest web of connections between the prefrontal area [where the dopamine pathway and its associated pleasure and addiction centers are located] and the traditional limbic structures, which may explain why they present, among all species, the greatest variety of feelings and emotions" (Amaral). As a consequence, psychological processes – defined as neocortical activity in this case – strongly influence the outcome of external stimuli, but to what extent? Take, for example, Thích Quang Đurc, a Buddhist monk who self-immolated in Saigon in protest of the Vietnam War. Upon transcending into a meditative state, Thích Quang Đurc lit a match and dropped it on his gasoline-soaked body. What happened next is surreal: simply put, nothing happened. According to journalist David Halberstam, "As he burned he never moved a muscle, never uttered a sound, his outward composure in sharp contrast to the wailing people around him." (Halberstam, 1965) Numerous monks followed suit – each one human; each one having skin with nociceptors designed to detect temperature, pressure, and pain; each one relinquishing his body in silence. This paradox poses the question: Can persistent thinking in one direction negate fundamental biological reflexes and subsequently compromise emotional responses? Although nature is riddled with altruism, only human nature can be characterized by spite where adamant thoughts of reprisal ultimately harm both the elicitor and the receiver of hate-driven behavior. So why do we commonly proceed in this direction especially when we are aware of the negative consequences, and to what extent are we capable of mediating necessary changes so quality of life is generally improved?

This phenomenon of negating the preservation of personal life is not a modern one; martyrs, for example, have been documented since the beginning of civilization. Humans have long been able to use the power of thought to control their own emotions. However, the first basic theories on emotional output did not reflect this complexity. Rather, they aimed only to organize the pathway by which environmental stimuli are translated into emotions. First, the James-Lange Theory proposed in 1884 uses a person's physiological signals (nail biting, shaking, etc.) to deduce the emotion that will result by arguing that "without the bodily states preceding the perception, the latter would be purely cognitive in form and destitute of emotional warmth" (Lange). In other words, behavioral responses are always followed by emotional tags. The Cannon-Bard Theory proposed in the 1920's, on the other hand, suggests simultaneity of physiological change and emotions. In neurobiological terms, the thalamus receives a nervous impulse and divides this message in two. One signal goes to the cortex to originate subjective experiences like fear, rage, sadness, joy, etc. while the other part goes to the hypothalamus to determine the peripheral neurovegetative changes



Figure 2. The self-immolation of Thích Quang Đurc. (Browne).

(symptoms) such as blood vessel dilation and increased heart rate.

The psychological aspect of emotion was then incorporated into the Two Factor Theory of Emotion, which grants an individual greater autonomy through cognitive appraisal of a stimulus so that an experience can be subjectively labeled prior to evoking an emotional response. This means that a step of rationalization takes place in between physical arousal or stimulation and the ultimate emotional response. Several theories have since been developed that branch off the Two Factor Theory in

that they, too, partially attribute emotional responses to the power of thinking. For example, “when we do not know how to behave, we treat others as information sources, behaving as they do with the impression that they know what they are doing.” This Informational Social Influence comes in two forms: Private acceptance occurs when we genuinely believe the other person is right and public compliance occurs when we copy others because we fear ridicule or rejection if we behave otherwise. Regardless of the motives behind it, following others can lead to permanent changes in beliefs, values, and behaviors that may dissatisfy or anger an individual who may simply lack the confidence to be the example that others emulate. So this particular individual’s low self-esteem is burdened through daily activities until his attitude towards society is permanently deranged. Ultimately, a person without a sense of direction must assume control by making firm, unabated decisions on how to proceed with his intimate desires, a task for which outside help is often sought but rarely useful.

Furthermore, a Social Comparison Theory illustrates our direct response to other people based on their identity, an idea validated by a crafty experiment summarized as follows: Those who portray themselves as benevolent and culturally similar to another individual are treated with greater dignity (i.e. they have their lost wallets returned to them) by that individual. On the other hand, culturally similar people who are not perceived as compassionate are treated more harshly by their peers than are culturally dissimilar people with the same degree of negative attitude. (Syque) This skewed distribution of patronization suggests that a person has intimate desires to change the negative aspects of himself by virtually placing himself in the shoes of the “culprit”. Thus, people subtly acknowledge their self-perception based on their treatment of particular people. So, in other words, one’s behavior towards others is a reflection of the emotional gymnastics one subconsciously partakes.

In accordance with this personal understanding of the characteristics one would like to display, a Self-Perception Theory has been adopted to relate our actions to our own beliefs. For instance, a person deals with uncomfortable tension arising from two conflicting thoughts that leads to a feeling known as cognitive dissonance. Dissonance is strongest when we believe something about ourselves and then do something contrary to that belief. Take, for example, a person who considers himself noble, but fails to speak out against

blatant prejudice or hateful disrespect. Let’s buff the scenario by asserting that the person is not in danger himself since the perpetrator is a close acquaintance. The individual croaks, unable to defend the victim’s honor which is so intimately connected with his own integrity. The discomfort he feels is like a tension between the two opposing thoughts: to be or not to be. To release the tension we can take one of three actions: Change our behavior, justify our behavior by changing the conflicting cognition, or justify our behavior by adding new cognitions. Either way, the person no longer holds himself in the same esteem, and dramatically alters his self-image.

A common consequence of repeated cognitive dissonance is Major Depressive Disorder (MDD). Anorexics, for example, suffer from unrealistic thinking about the layout of their bodies, which stimulates delusions with psychotic reactions (Dodig-Curković). People with MDD are largely benefited by cognitive behavioral therapy in which a psychotherapist helps the patient become aware of inaccurate or negative thinking. From a biological standpoint, “[Cognitive Behavioral Therapy]-related symptom improvement in MDD patients is illustrated by increased baseline (sans stimuli) activity in the ventromedial prefrontal cortex – [implicated in the processing of risk and fear].” There are also enhanced arousal responses in the amygdala and caudate, which are highly involved in learning and memory. (Dolcos) So following treatment an MDD patient is able to process certain stimuli more extensively and rationally, deviating from negative and hurtful self-perception. Since a psychotherapist’s duty is to remain as nonjudgmental as

“...one’s behavior towards others is a reflection of the emotional gymnastics one subconsciously partakes.”

possible, the patients’ real obstacle is to trust themselves to truthfully vocalize and recognize their issues, worries, and desires. The psychotherapist is simply a compassionate listener that occasionally offers advice and guidance, so the individuals really at work here are the patients

who must improve upon their own self-perceptions via profound introspection.

As you read through this paper you may have realized that some questions that were posed have been left unanswered – and with just cause. The cause and effect of emotions are so subjective that the answers lie within oneself. Pathways can be illustrated and theories will come and go, but the truth will remain far from universal. Despite the understanding a professional or friend may lend, only you know the ultimate solution to your emotional

problems. Quite frankly it begins with an inexplicable honesty and trust in oneself that can only be defined as raw feeling. As your intentions become positive in nature, your thoughts will follow suit. These thoughts, as illustrated in the paper, will eventually manifest themselves into actions, actions that will define your character and culminate your destiny. So strive to be good – that is, of course, if you strive to be happy.

REFERENCES

- Browne, M. World Press Photo 1963, Amsterdam: World Press Photo, 1963. retrieved 23 October 2010.
- Dodig-Curković, K., et al. The case report of treatment strategy for Anorexia nervosa with psychotic elements in adolescent. *Collegium Antropologicum* 34, no. 3 (2010): 1093 – 1099.
- Halberstam, D. *The Making of a Quagmire*. New York: Random House, 1965.
- Nephew, BC., et al. Blood oxygen level-dependent signal responses in corticolimbic 'emotions' circuitry of lactating rats facing intruder threat to pups. *The European Journal of Neuroscience* 30, no. 5 (2009): 934-945. DOI: 10.1111/j.1460-9568.2009.06875.x
- Ritchey, M., et al. Neural correlates of emotional processing in depression: Changes with cognitive behavioral therapy and predictors of treatment response. *Journal of Psychiatric Research* 9, no. 7 (2010). doi:10.1016/j.physletb.2003.10.071
- Rocha do Amaral, J. and Martins de Oliveira, J. *The Healing Center On-Line*. "Limbic System: The Center of Emotions." <http://www.healing-arts.org/n-r-limbic.htm>.
- Syque. "Theories About Emotions." Last modified 2010, http://changingminds.org/explanations/theories/a_emotion.htm.