

From Premature Judgment to Mindfulness: using Neuroplasticity and
Consciousness to Reframe Unhealthy Ways.

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Abstract

Is it cognitively possible to physiologically and emotionally rewire old habits, creating a new behavior in its place, (a new neurological pathway), and thus a new way of being?" This author proposes that there is enough research in neuroplasticity to suggest that self directed neuroplasticity,¹ or cognitive self-remodeling is viable, (beyond the studies on the diseased mind). This capacity to consciously direct and internally remodel neurologically imprinted behavior patterns gives an individual hope, empowerment, and a treasure chest of possibilities. The following discussion also addresses prevailing cognitive change modalities intent on facilitating more naked presence and less premature, prerecorded behaviors and biases.

¹ A phrase coined by Dr. Jeffrey Schwartz in regards to his Four-Step method in reframing, originally used primarily for obsessive-compulsive disorder training.

The Mind Body Connection

In his book *Emotional Intelligence*, Daniel Goleman suggests that “selective perception” is a means of protection, and that this constriction limits growth and self-confidence because it limits experiences to a miniscule playing field. When one has a small view of the world, abilities and options tend to be small and challenges become overwhelming and frustrating. Goleman asserts that lasting cognitive change is reclaimed through connection with a complete and absolute freer self. From this stronger self one can begin to change the present and the future. Martin Seligman proposes using character strengths to forge a different path. Seligman, the father of modern positive psychology, additionally encourages research that focuses on individual human strengths as well as weaknesses or dysfunctions. He believes that while humans may have a set point capacity for emotional wellbeing they can turn the thermostat up or down a bit through beliefs, and, that there are valid methods that support this accomplishment. A few years before Seligman’s launch of positive psychology in 2000, the science of neuroplasticity bursts into existence with the physiological proof that the human brain renews cells based on its experiences (Eriksson, Perfilieva, Bjork-Eriksson, Alborn, Nordborg, Peterson, and Gage, 1998). With solid proof in favor of the existence of post-natal neurogenesis (birth of neurons), and the emphasis of positive psychology, on raising the talents of the well individual, a climate was set for the next exploration: is there a connection between the brain’s adaptation and willful conscious thought?

Research

Mario Beauregard in 2007 presented a ten- year review of neuroimaging studies concluding that there is brain activity and neurobiological changes related to cognitive volition. One section of this meta-analysis is devoted to studies on conscious and voluntary regulation, another section reviews studies on the effect of psychotherapy in a disordered mind, another is focused on placebo affects,

and lastly there is a section evaluating the brain activity of people with Parkinson's disease. All of these studies support that beliefs, thoughts, and even mere expectations, can induce rapid neural changes. In 2004 Davidson, Lutz, Greischar, Rawlings, Ricard, and Singer received great media attention, when they showed that monks who had meditated over ten thousand hours actually altered the function and structure of their brains, (seen by functional magnetic imaging), and that the monks with the greatest hours of meditation had the greatest adaptations.

In their review, Shea, Krug and Tobler (2008) make a solid distinction between the brain activation in hardwired habits, a "stimulus-response association" a conditioned learning that reinforces expectation of a reward or outcome down the road (Packard & Knowlton, 2002), and a *conceptual* and *nonconceptual* goal directed behavioral system, that formulates cognitive responses and concepts that distinguish between outcomes and their reward value (Dickinson & Balleine, 2002). Shea et al. (2008) defined conceptual goal directed capacity as "an ability to deploy representations with semantically significant constituent structures" (Section 3 para.1), as well as an ability to generalize and make inferences. Their review cites that many animals are not limited to stimulus-response associations and that they can generalize and make inferences, but may be limited to the nonconceptual goal directed decision making system. They further postulated that through linguistic representation humans may use, as needed, a higher order, more evolved, more efficient mechanism to make decisions, but they had but one study to support this hypothesis. Yet the mere existence of a dual system of decision-making with an ability to take action based on a valuation of outcomes empowers humans. With this knowledge comes the belief that one can self regulate emotions and be less controlled and constricted. While Shea et al. (2008) don't give scientific proof about the human capacity for change based on beliefs, they open the door to its

probability and stimulate others to continue the search. Can a conceptual human mind, or a fast held belief, alter the structure of the human brain?

In the studies reviewed by Beauregard (2007) there is obvious pointing to the amygdala, the original, primal, long term emotional memory part of the brain as the force to be tamed by the higher thinking prefrontal lobe modulator or mediator. It appears that once an emotionally learner task is solidified it becomes relegated to the amygdala for future stimulus response action. The prefrontal lobe seems to be the control center of more rational thinking. Whether the emotion was sexual arousal (Beauregard, Lévesque, & Bourgouin, 2001), sadness evoked in adults (Lévesque et al., 2003) or children (Fox, Henderson & Marshall, 2001), or negativity arousal (Schaefer et al. 2002), all showed neuroimaging activity in the amygdala (when emotions were uncontrolled), or in the prefrontal lobe during cognitive suppression of emotions, or even during “reframing” (reappraising a negative stimulus into a non- emotional event).

According to Beauregard (2007):

Taken together, the results of the neuroimaging studies of emotional self-regulation reviewed in this article clearly show that the conscious and voluntary use of metacognition and cognitive recontextualization selectively alters the way the brain processes and reacts to emotional stimuli.

This meta-analysis makes an associative observation of x to y, (or a mind body connection), but does not seem to make any observations of how the mind communicates to the body.

Discussion

Newtonians may say that what is between x and y is all mechanical, all systematic and follows a logical measurable pattern, (central nervous system, neurotransmitters, neurons, synaptic clefts). Followers of Einstein might suggest the existence of a potential flow of energy between the mind and the body. Even quantum physics might suggest a potentiality, a subjective inner flow or tendency

(*The Dancing Wu Li Masters*, Gary Zukav, 1979). Let us again remember that Shea et al. (2008) suggested that this flow might be an internal language, composed of constituent structures and defined as conceptualization. The value of this human conceptual inner voice is its promise to free humans from the laborious work needed in rewiring a stimulus response associated behavior. If in fact concepts and beliefs can create new neural pathways, humans, rather than being subjected to repetitive rehearsals or reinforced learning to change a set point, can utilize the goal directed more conscious system, where bias and premature judgments can be more quickly derailed allowing space for the new belief.

The baton is handed off to Kumaran, Summerfield, Hassabis and Maguire (2009) to track the existence of distinct regional brain activation in concept driven behavioral tasks vs. associative stimulus responses. First, they determined that a task was concept driven by challenging participants to non-linear abstract thinking and then they differentiated between linear stimulus response associations and concept driven responses (Neuroimaging data para. 2). As suspected in Shea et al. (2008), functional magnetic resonance imaging reveals that tasks that have conceptual semantic value are represented with higher priority in the brain. The Kumaran et al. (2009) study further suggests that with conceptual thinking a network similar to computer web spiders crawl about the brain receiving messages from different sections and feeding relevant data to the decision maker.

Having logically outlined the likelihood that conceptualization is a potent higher order driver of human brain activation via the goal directed behavioral system; a look at varied cognitive techniques that access this system will finalize the quest of this paper. Dr. Jeffrey Schwartz, an expert in obsessive-compulsive disorder, provides a viable and proven framework for unwanted behavior. His “Four Steps” model keeps participants focused on devaluing the unwanted thought or action,

stimulating the goal directed behavioral system. Through *Relabel* a person first observes the unwanted thought, behavior or urge, juxtaposed to their present desire, a space for pausing and reflecting is created, an opportunity for inference. Through visualization the urge or behavior is *Reattributed* to a biochemical reaction and/or a past-created neurological pathway that is presently not helpful. In the *Refocus* step, presence is given to the desirable behavior, and subsequently *Revalue* is achieved through the creation and conceptual ownership of the new belief, a new emotional and biological way of being. This technique, as in many mindful exercises, moves one from primal reaction, to thoughtful responsiveness. Essentially, it is the gap between the urge, or the unwanted behavior and the action, where mindfulness exists. This is the same gap that is filled through controlled intentional breathing, inducing a temporary relaxation response by stimulating parasympathetic pulmonary neural receptors. Jon Kabat- Zinn (2007), also uses breathing and refocusing on the breath as a relaxation technique to create full presence: the mind and the body being one.

Calming techniques, such as yoga, visualization, pausing, and meditation tend to loosen the reactive amygdala grip, (the fight or flight reaction), and allow space for thoughtfulness and realignment with one's true self. Exercise can also be a mediator of reactive behavior by applying the brakes on the fight or flight sympathetic nervous system and stimulating parasympathetic bodily responses producing a homeostasis experience. Modalities for creating this mindful space, this self-awareness, this presence, is perhaps best left to personal preference.

Conclusion

Empirical research provides more than enough muscle to confirm the viability of self directed neuroplasticity, or self- regulation of emotions and thoughts with biological consequences. By consciously acknowledging and releasing past cognitive impressions we break the bonds of limiting bias and create new ways. The power train for lasting change, or greater success in reframing, seems to lie

in one's ability to conceptualize, believe, and value intrinsically. While repetitive rehearsal can influence change, we may be better served through the goal directed conceptual behavioral system, a system that taps into our essence. As Daniel Goleman suggested, change may be inspired from a freeing up of one's inner most core beliefs, which Seligman might call core strengths, which this author might call core values, and Joseph Campbell might call "following your bliss."

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