

Battle for the Brains: Zombies vs. Neuroscientists

Who will persevere - who will win? The scientists' hunger for knowledge or the Zombies craving for brains?



But how did we get here? Emotions are generated by: (1) recognizing an emotional stimulus in a certain context, (2) attending it, (3) assigning a meaning (positive or negative) and (4) generating a response.

Haven't we all been there? In a situation that made our hearts jump, something that scared or angered us? Situations when our emotions seemed to go nuts...

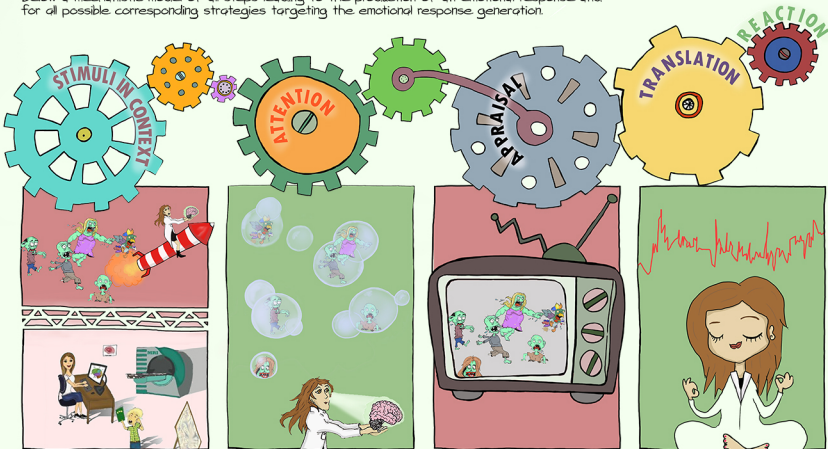


Emotion regulation strategies refer to the ability to modify an existing or initiate a new emotional response. This may happen during any of the emotion generation steps as described below.



Let us imagine you are a neuroscientist and you find yourself in the middle of a Zombie apocalypse. In your hands one last brain needed for your final analysis. What do you feel? Are you angry? Terrified? Frightened? In fear of your PhD? Weirdly psyched?

Below a mechanistic model of all steps leading to the production of an emotional response and for all possible corresponding strategies targeting the emotional response generation.



(1) Select or modify

If you find yourself outdoors during a Zombie apocalypse you could change the context eliciting the emotion by either getting out of there as soon as possible or you may choose to always stay indoors in the first place in order to avoid such a situation from happening at all.

(2) Attentional deployment

Selective attention or distraction: You may regulate the onset of your emotions by focusing your attention on the most pleasing aspects in your surroundings only (e.g. the cool brain) while ignoring stimuli that may elicit less pleasing emotions (e.g. braincraving Zombies).

(3) Cognitive change

Changing the way a stimuli is appraised. E.g. during reappraisal the meaning of a stimuli may be reinterpreted. For example, you may tell yourself that a certain situation is not real that it does not affect you or here, that the Zombies only run after you because they want to talk to you about brain anatomy and structure.

(4) Response Modulation

Changing the physiological reactions of your body in order to change the emotion experienced.

Neural systems involved in the generation and regulation of emotions



Brain areas supporting the generation of emotions (red).



Brain areas with a more intermediary role (green).



Brain areas supporting the regulation of emotions (blue).



Review articles and original references: Ochsner, Silvers, & Bhutic (2012). Functional imaging studies of emotion regulation: a synthetic review and evolving model of the cognitive control of emotion. *ANYS*, 125(1).