

The Neuroscience Behind Emotions & Decision-Making

Decision science dominates our subconscious minds.



I was only planning on buying a new pair of running sneakers...hmm, well, that's okay, I'll use this adidas x Stella McCartney gym bag a lot..." is the last fleeting thought you tell yourself, before shoving the receipt back into your bag of recent purchases. As you metro back to Pioneer Square in Portland, Oregon, you attempt to reason with yourself, urging your mind and heart to accept the fact that you made the right choice in one of life's many conjunctions in decision-making.

Whether it's morally, socially or financially-based, science shows that your emotions were silently guiding your decision-making as you made your way around an afternoon of shopping. Aside from very rare anomalies, it is safe to say that almost no one intentionally enjoys losing money. When it comes to spending money, however, especially when associated with product desirability in brand-name deals, that we don't essentially need, *somehow we're still all in. But why?*

The scenario is setup as such: you planned to check out the newly opened, exclusive, invite-only employee store after finding someone who could get you in. You're mentally prepared to wait in long lines, deal with hoards of people, limited timing and tons of seriously marked down deals — that only you and a select few have access. Your brain is already subconsciously signaling that a reward lies ahead and you press on. Your alternative is going to a flagship store and searching for the new release of one specific high-value, priced item — thereby running the risk as well as uncertainty that the product will be sold out by the time you enter the store or they don't have your size — a punishment that is simply too much to bear.



Let's evaluate why you made that emotional decision, and examine the varying levels of reward and punishment in correlation to risk and uncertainty.

Exhibiting an Emotional Response: Somatic Marker Hypothesis

To pinpoint how we arrive at a specific decision in real-time is near impossible. To put it simply, our brains just don't work that way! As discovered in the Iowa Gambling Task studies by [Antonio Damasio](#) and [Antoine Bechara](#), when assessing the module of emotions while participants made a decision, those with lesions on their ventromedial

prefrontal cortex (vmPFC) showed no elevated skin conductance response (SCR) to anticipatory emotional impact before making a decision compared to healthy participants. Simply put, they showed no bodily changes. The Iowa Gambling Task evaluated the emotional response with these two sets of participants. They were told to select cards from four card decks: two were considered high reward, high punishment — noted as disadvantageous, while the two others were low reward and low punishment — noted as advantageous. As time went on, healthy participants' emotions' became biased as to which decks to select from. Slowly, healthy participants began to select from the advantageous decks. Though they weren't initially told the rules of the game, healthy participants were able to comprehend what they *thought* the rules of the game were, and how reward and punishment played a role in their decision-making process.

And the outcome for the participants with damaged ventromedial prefrontal cortex (vmPFC) subconsciously viewed things differently. It turns out their decision-making wasn't affected by reward or punishment. In fact, they continued to select cards from the disadvantageous decks and as a whole, were unable to explain what they thought the rules of the game entailed. Signaling no connection between reward or punishment in the decision-making.

Driving Toward Rewarding Experiences

Remember the example of shopping at the employee store? Well, if we take the results of the Iowa Gambling Task and compare it to this situation, there are similarities in this example of behavioral economics. The idea of getting a high-valued brand at a lower cost — whether in-season or not — was enough to make you want that product. Though there may be other reasons we tell ourselves, such as brand loyalty, product desirability, or quality, these are not examples of rational decision-making. You can spend more on a certain brand and still reap the benefits of reward, knowing you probably spent less on this purchase than you would have at the flagship store. Since you are already invested in the brand, and are content with the fact that you can walk out of the store with something (advantageous) even if you weren't totally in love with, you find yourself making the right decision. You purchased more than one pair of sneakers with a 50% discount. Because the risk was low due to certainty, and the punishment was low due to the price reduction, you thought that you made the right decision. With this reward in mind, you decided to purchase a gym bag too.

Leaving the store smiling, feeling as if you're on top of the world and that you beat the system; in reality, your emotions were working against you this entire time.