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# Psychology Today

## Reason and emotion: A note on Plato, Darwin, and Damasio

If reason and emotion affect decision-making, which matters more?

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reason and emotion

It is common to think that emotions interfere with rational thinking. Plato described emotion and reason as two horses pulling us in opposite directions. Modern dual-systems models of judgment and decision-making are Platonic in the sense that they endorse the antagonism between reason and emotion. The activities of one system are automatic and often emotional, whereas the activities of the other are controlled and never emotional. The automatic system gets things done quickly, but it is prone to error. The controlled system's mission is to keep a watchful eye and to make corrections when necessary. Like a watchful parent, this system reins in our

impulses and overrides our snap judgments.

Emotions can be powerful experiences, but they usually do not last long. They sometimes make us do things we later regret. Today, we are angry at a colleague and want to yell at her. Tomorrow, we wish we had acted more rationally, no matter how compelling our desire was at the time. By transforming goals and desires in the heat of the moment, emotions can lead us to make choices that hurt our long-term interests. Doing something that you do not want to do is one of the hallmarks of irrationality - hence, emotions make us irrational.

The struggle of reason against emotion is an appealing image. But do emotions always lead us astray? Clearly, one of their functions is to guide us towards pleasure and away from pain. To succeed in gaining what is good and avoiding what is bad is difficult in an uncertain environment. We often make decisions that resemble gambles. When we invest in a company, buy a new house, or get married, there is a chance that things won't work out as hoped. It's critical that we're able to judge what risks are worth taking - and emotions can help us make those judgments.

A few years ago, neurologist Antonio Damasio and his colleagues showed how negative emotions can improve decisions involving risk. They devised a gambling task, in which players repeatedly selected cards from four decks. With each draw, they either gained or lost money. Two of the decks were safe and advantageous; choosing them consistently would gradually accrue money over the course of

the task. The other two decks were riskier. Although the winning cards were worth more than the winning cards from the safe decks, the losing cards were so damaging that, if chosen repeatedly, the risky decks would eventually bankrupt the player. The best strategy was to consistently choose from the safe decks. Damasio and colleagues found that participants were initially attracted to the risky decks because of their large positive payoffs. However, players soon retreated to the safer decks where they fared better in the long run. How did they figure out that playing it safe was better? The answer came from a group of neurological patients with damage to a brain region associated with emotional sensitivity to reward and punishment (i.e, the orbitofrontal cortex). Though these patients' cognitive reasoning was unimpaired, they could not experience the negative emotions that normally accompany large losses. Like the unimpaired participants, these patients were initially attracted to the riskier decks, but because they failed to respond emotionally to large losses, they never learned to avoid the risky gambles. So, if fear of loss can protect us from courting disaster, can we conclude that negative emotions always play an adaptive role in decision-making? The answer is no, and to show why, Shiv, Damasio, and others followed up the original gambling study with an interesting variation. In their experiment, participants repeatedly chose between keeping and investing \$1. If they invested \$1, they had a 50% chance of winning \$2.50 and a 50% chance of losing the invested dollar. In this game, it is best to always choose the risky option. Individuals who fail to invest, out of fear, suffer financially. As in the first experiment, players were initially attracted to betting on risky gains, but as before,

they became more conservative after experiencing loss. In contrast, orbitofrontal patients (who have trouble experiencing negative emotions) continued to invest regardless of losses. In this task, the patients who were not encumbered by emotion outperformed individuals experiencing the fear of loss. The lesson from these studies is that the experience of negative emotions can help and hurt decision-making; it all depends on the context. Considered in isolation, emotions are rather arational (neither rational nor irrational). It seems then that we are right back to the Platonic dualism of reason and emotion. If we can't trust that emotions will always steer us in the right direction, there is no way around a dispassionate calculation of potential gains and losses. This controlled, quantitative approach is most useful for decisions with clear, measurable outcomes. With economic choices, it's possible to estimate the probabilities of different consequences and to quantify how good or bad those outcomes are. For example, in the games of roulette and blackjack, we can mathematically ascertain that the best strategy is to never play. Similarly, we can come up with mathematical criteria to judge where we should invest our money. Things get a bit murky, though, when we try to apply calculated reasoning to social decision-making. Many social situations involve costs and benefits that are difficult to assess and compare. Consider the gambit of asking an attractive stranger out on a date. Being rejected is a type of loss (just as being accepted is a type of gain), but assigning numerical values to such outcomes may seem contrived or arbitrary. Likewise, we can assume that there is some probability of rejection, but how to come up with a specific value is not obvious. Understanding human choices in their

natural context is harder than understanding the rules of a laboratory game. What's more, the way people respond to social situations is somewhat subjective and variable. The anxious and avoidant might respond to rejection more strongly than the emotionally secure. In a world where something that is rational for one person may be irrational (or even unfathomable) for another, prescribing a rational or adaptive response is difficult.

So Plato's rationalism may not win the day either. Darwin would argue that the influence of emotions on decision-making has survived the rigors of natural selection. In review, we see three reasons why this may be so. One reason, as noted in the preceding paragraph, is that emotions give useful guidance whenever the environment fails to provide all the information needed for thoughtful analysis. The other reason is an asymmetry that might be lurking behind the two Damasio studies. When looking at the two gambling studies, it is tempting to discard emotions from the process of decision-making. If they help in one context and hurt in another the net outcome seems to be a zero effect. It may be the case, however, the type of context in which emotions help is more common in our world than the type of context in which they hurt. The final reason not to discard emotions remains the fact that they make us act quickly and decisively.

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