Are cognition, motivation, and emotion the same or different?: Let's abandon that thinking.

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Abstract

This is a short essay that answers a question posed by the editors --- Can you distinguish motivation, cognition, and emotion? My answer is that searching for the commonalities and boundaries between motivation, cognition, and emotion may not be a particularly productive way to advance our understanding of the human mind. This is because they are just mental categories that we psychologically construct based on our subjective feelings and post-hoc interpretation of behaviors. Motivation, cognition, and emotion are not things that define and influence our mental and neural processes. On the contrary, they are a consequence of our interpretation based on the output of mental and neural processes. As such, these categories have, at most, only limited information about mental dynamics.

Can you distinguish motivation, cognition, and emotion? All of these terms are naïve concepts --- these are the concepts that originated from our daily language. In other words, these are just labels based on our intuitive and naive understanding of how the mind works. Therefore, we can distinguish them at the level of intuitive and subjective understanding (that is why we have these separate words in our language), but subjective understanding is ambiguous and varies between individuals, making it extremely difficult to pin down what they are. Different researchers can provide different scientific definitions of these concepts (indeed, many textbooks define them in different ways), but it is nearly impossible to scientifically/empirically prove that one definition is more correct than others. Thus, in my opinion, searching for the commonalities and boundary between motivation, cognition, and emotion may not be a particularly productive way to understand human mind.

I actually think this is a good question to ask, because it makes people realize that what we take for granted is actually not that self-evident. In this essay, I would like to elaborate my point to clarify how I got to that conclusion. My answer to this question is closely aligned with my answer to the question “What is motivation” (chapter xx) and readers may want to refer to that chapter to understand the general idea.

When we try to distinguish motivation from emotion and cognition or think about potential overlap between them, we implicitly assume that such categories exist *a priori*. The categories have some definitive characteristics (which could overlap between the categories). Also, the definitive characteristics are often supposed to be caused by the corresponding categories. For example, one can argue that motivation energizes and directs human behavior (a common definition often seen in textbooks). Others may argue emotion elicits some physiological arousal and strong subjective (often valenced) feelings (also a common definition of emotion). In other words, motivation, emotion, and cognition are supposed to be antecedents of various behavioral, psychological, and neural outcomes (Figure 1a). This notion is sometimes called psychological essentialism (Newman & Knobe, 2019). If you are familiar with statistics, you may also notice that this (Figure 1a) is a basic assumption of factor analysis (latent constructs affecting indicators; see Borsboom et al., 2003 for a critical view of this assumption). Perhaps overlap of these categories can be represented by cross-loadings in the factor-analysis analogy.

Figure 1a

Figure 1b

Figure 1

a. Prototypic view of motivation. b. Psychological construction view of motivation.

This idea is intuitively appealing: Cognition guides reasonable decision making. Motivation empowers our actual behavior. Emotion leads to quick and impulsive behavior, which often overrides the choice made by cognition. But one fundamental problem of this idea is that there is an *a priori* assumption that there are indeed such categories as cognition, emotion, and motivation. But where do these categories come from? These are the terms used in our daily life, which simply reflect our subjective and naïve understanding of our world and mental state. Danziger (1990) provides a good overview of how these concepts were historically created and constructed in our daily life and how they were transformed into scientific language. Of course, it is possible that our naïve understanding of the world and mental state are correct and there is indeed a meaningful distinction between them in our mind, but a lot of psychological studies have revealed that we have little access to our mental processes (Nisbett & Wilson, 1977), let alone our neural processes.

The critical point is that, the real picture could be the complete opposite of Figure 1a. There is no doubt that our behavior is governed by certain neural and psychological processes (there is a question of what “psychological process” is, but I would not get into details on this question). Unfortunately, we do not have direct access to these processes. However, we still experience some sort of subjective mental states. When you are enjoying studying a school subject, you cannot be sure what type of information processing is taking place in your mind, but you still experience a certain subjective feeling. You can also observe your own behavior. Some of these subjective feelings and behavior correlate with each other in our daily life (and have some consistency over time), and based on these correlations, people psychologically “constructed” (Russell, 2003) categories and labelled them (Figure 1b). These categories are often very useful to explain and predict others’ behavior and thus are consolidated into our common language. In my opinion, this is how the categories of cognition, motivation, and emotion exist in our vocabulary.

Critically, these categories are constructed based on our subjective feelings, and as such, there is no guarantee that these categories map neatly onto underlying psychological and neural processes (Murayama et al., 2019). In addition, as the psychological construction process is highly subjective, it is unlikely that everyone has exactly the same conceptualization of these categories. Think about a classic question: Is interest an emotion? Different people have different answers. This is because everyone constructs this category in a slightly different manner. And more problematic is the fact that there is no way to decide whose conceptualization is correct because this is an issue of subjective perceptions.

I must say that the idea that I portrayed here is not new. Indeed, different versions of the idea have been discussed in various contexts (Borsboom & Cramer, 2013; Brick et al., 2020; Churchland, 1996; Murayama et al., 2019;

Russell, 2003). In the field of affective science, the psychological construction view of emotion is one of the predominant views about emotion (Barrett & Russell, 2014).

In sum, there are indeed distinctions between cognition, motivation, and emotion in our intuitive understanding of our mental states. We could even ask people to verbalize their understanding of the commonalities and differences (see Donnellan et al., 2020, for this type of attempt). However, I doubt that thinking about these categories gives insights into our understanding of mental and neural processing.

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