THE ROLE OF EMOTION IN HUMAN DECISION-MAKING

IMPLICATIONS FOR BRAND SUCCESS

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1. DEFINITION OF EMOTION

Everyone thinks they know what emotion is. However, the multiple definitions of the term found in respected dictionaries show that the understanding of the concept is so variable that it often becomes meaningless. The Oxford English Dictionary defines emotion as "*a natural instinctive state of mind deriving from one's circumstances, mood, or relationships with others*". Merriam-Webster defines it as "*a conscious mental reaction (such as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body*". The Cambridge English Dictionary says it's "*a strong feeling such as love or anger, or strong feelings in general'*. Therefore, even across these three highly respected dictionaries, emotion is defined as an instinctive state of mind, a conscious mental reaction, and directly as a feeling—three very different constructs.

These challenges around the concept of emotion are only exacerbated further in the research industry by confusion from earlier thinking that oversimplifies the distinction between emotion and cognition and the popularization of the distinction between System 1 and System 2 processing following the publication of Nobel Prize Kahneman's book *Thinking Fast and Slow*.

A commonly accepted definition from Davidson, Scherer and collaborators states that *emotion refers to a relatively brief episode of coordinated brain, autonomic/interoceptive and behavioral changes that facilitate a response to an external or internal event of significance for the organism* [1]. Feeling is defined more narrowly *as the subjective representation of an emotional experience.* The ARF Glossary also aligns with this definition. Influential theories of emotion in the history of psychology and neuroscience proposed that we first experience a physiological response to a stimulus (emotion), and then interpret that emotional experience as a feeling or emotional construct [2]. For instance, you may notice an increase in heart rate and sweaty palms, and then interpret those sensations as fear [3].

During the past decade, there has been and increased interest in the industry on measuring emotion and its effects on behavior; this is why consumer researchers could benefit from a comprehensive approach and framework around the emotional experience.

2. THEORY OF CONSTRUCTED EMOTION

A recent prominent theory of emotion, the Constructionist approach, claims that that emotions are defined not simply by physiological or psychological experiences, but because we evaluate and attribute some kind of meaning to them. Part of the reason emotions are so

difficult to define is because they are constructed of more basic psychological elements, such as physiological sensations, that are not specific to any one emotion and may be common across several emotions. For example, changes in the autonomic nervous system, such as increased heart rate, may be similarly present in the emotional experience of fear or surprise. The evolution of the theories around the concept of emotion has led to empirical evidences supporting the Constructionist Approach [4]. At Ipsos, we align with these empirical evidences and embrace this theory.

According to this theory, emotion is not one definable experience across individuals or even within one individual. Rather it is a constant stream of different processes that contain different elements, which the brain continues to interpret and adapt within the context of a specific situation [4]. Indeed, researchers exploring the subjective experience of emotion have noted that emotions are highly intercorrelated both within and between the subjects reporting them [5, 6]. Subjects rarely describe feeling a specific positive emotion without also claiming to feel other positive emotions [8]. These intercorrelations among emotions, often obscured in experimental paradigms of basic emotions, are addressed head-on by dimensional models of affect. Dimensional models regard affective experiences as a continuum of highly interrelated and often ambiguous states.

The dimensional model built on valence, arousal and control/dominance (VAD) has been proven the most accurate by factor analysis studies, and has a major advantage: since the dimensions are designed as independent, results remain comparable dimension-wise even in the absence of others (e.g., valence and arousal without control/dominance).

Dimensions are defined as follows [7]:

1. **Valence:** categorizes the positive versus negative direction of an emotional response.
2. **Arousal:** physiological and psychological degree of alertness, excitement or engagement.
3. **Control/Dominance:** it related to the degree of power or sense of control over the affect.

While basic emotion theories had listed basic emotions uniquely identifiable by facial expressions, Barrett et al. make a very important point about the importance of context. "*We are not suggesting that facial movements are meaningless and devoid of information. Instead, the data suggest that the meaning of any set of facial movements may be much more variable and context-dependent than hypothesized by the common view*". This argument has been used as a focus of criticism of automated systems of emotion classification by coding of facial

affective response. However, while it is true that emotions are highly context dependent when observed "in the wild", as marketers we are interested in specific situations for brand communication or consumer behavior. In order to control for this variability of context, it is key to harmonize the flow of experience across respondents and aggregate the data of a reliable sample size on the target stimulus.

3. THE ROLE OF EMOTION IN DECISION-MAKING

Research has shown that emotions have great influence on multiple cognitive processes. These include attention [8], perception [9], memory encoding (encoding, storage and retrieval of information; [10, 11], and associative learning [12]. Remarkably, emotion is key for the activation of a motivational system of action tendencies (such as approach or withdrawal behaviors; [13]. In fact, the word emotion comes from Latin 'emovere', which means to stir up, or to move. The origin of the word emotion already emphasizes its actionability and relevance in behavioral drive. Therefore, exploring the role of emotion in decision making is a crucial and complex task that involves several elements.

a. Misconceptions around emotion in decision-making

The popularization of the default interventionist dual process theory (DPT) of decision-making has generated an oversimplified view of the role emotion plays in making decisions throughout the market and opinion research industry. Daniel Kahneman's dichotomy of System 1 and System 2 processes posits that there are two streams to process information and make decisions: a fast, automatic process reliant on heuristics and biases (System 1), and a slow, deliberative process based on rational logic (System 2; [14]). However, it's unclear how these processes interact and what triggers System 2 to intervene.

Given that emotions are generally fast and automatic, it seems to fit well with the notion of System 1 which also represents fast and automatic processing. Therefore, the two have become synonymous with several classifications of System 1 vs. System 2 as a proxy for emotions vs. cognition. In the rest of this document, we outline why this classification is incorrect and misleading and provide a new framework for a more adaptive role of emotions in the decision-making process.

b. The Ipsos Dynamic Decision-Making Model

The Ipsos Global Science Organization, working closely with experts from Lab PsyDe in La Sorbonne and Temple University, has developed a new model of human decision making that

reflects growing accumulation of scientific evidence against the DPT narrative [15]. The Ipsos Dynamic Decision-Making Model (DDMM) makes three important advances over the prevailing DPT:

1. Automatic and deliberative processes occur not as two separate and distinct processes in a dichotomy, but rather on a continuum [16, 17].
2. Context is a critical factor to understanding how decision making happens.
3. The prevailing DPT theory fails to contemplate the mechanism that governs whether automatic versus deliberative processing is engaged. There is a regulatory or **adaptive process** in the brain (Houdé calls this System 3 [18]) that modulates or guides this cascade of processes to come to a response that is adapted to the context and regulated by different elements:

   a. Stimulus context, goals/motivation, long-term memory (LTM)/knowledge and body states all influence the nature of adaptive processing and cognitive control, leading to engagement of different strategies that lie along the continuum of automatic and deliberative processing.

   b. These different factors also interact and influence each other (e.g., specific goals can be influenced by long-term memory and lead to different body sensations).

   c. These factors are also updated based on the outcome of decisions and may have differential influence on similar decisions in the future.
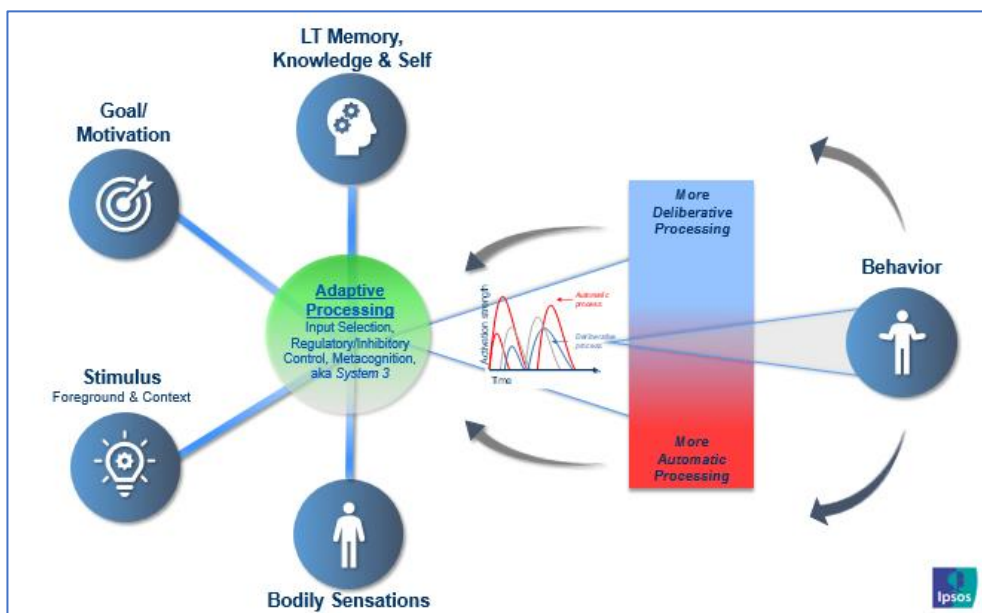

Figure 1. Visual depiction of the Ipsos Dynamic Decision-Making Model

c. Categories of Emotion in Decision-Making

Decisions led by emotions have traditionally been portrayed in popular culture as non-adaptive as opposed to reasoned ones. However, the nature of integral emotion as a guide for adaptive decisions has been shown to be adaptive itself. Decisions led by emotions are often based on the human instinctive drive to survival and yet, emotion-based decisions are shaped by the outcome of previous experiences. This is therefore adaptive by nature as reflected by the adaptive processing at DDMM. In the words of Herbert Simon [19], "*In order to have anything like a complete theory of rationality, we have to understand what role emotion plays in it".* Emotion and cognition are very closely intertwined: they are like the two sides of the same coin.

In DDMM, we argue for a broader influence of emotions on decision making. Borrowing from Lerner, we first classify emotions into four categories [20]:

1. *Ambient or incidental emotions* that are not directly related to the decision. While incidental emotions can be triggered by one situation, those emotions can impact the decision made in a next situation even if that situation is unrelated to the previous one. This carryover effect of incidental emotions occurs without awareness. Mood is an example of incidental emotions. For instance, when Covid-19 pandemic was prevalent, it influenced all decisions made by individuals even though they were not directly related to Covid-19 itself. Some studies have shown that mood, even if unrelated to the shopper experience, has an impact in purchasing behavior. An Ipsos study showed how an unrelated mood lifting event influenced shopper behavior, and it was also reflected on an increase in physiological arousal [21].

2. *Task-integral emotions* arise from the nature of the decision itself and deeply shape the decision-making processes over time. These effects can occur with or without awareness. They will be the reason why the outcome of decisions influences adaptive processing when facing similar decisions in the future. In the case of Covid-19, these include decisions involving trade-offs like flattening the curve and following social distancing against the impact on local businesses and economic consequences. An Ipsos study explored these decision trade-offs in markets at different stages of the pandemic.

3. *Affective reactions* that occur in relation to *the actual experienced outcome*, which will influence similar decisions. If the affective response, or the assessment of such response is positive, adaptive processing in the same situation will lead us toward an automatic decision in the same direction. This would refer to the emotions elicited by a received service in reference to the decision of acquiring that service.

4. *Affective reactions* that occur in relation to *the expected anticipated outcome*, often based on previous experienced emotions during similar situations, which will have a very strong influence in the strategy and direction of the decision whether this reaches awareness or not. The capacity to detect or measure anticipated emotion is very insightful when evaluating communication effectiveness. This refers to the emotion experienced at the point of purchase or during exposure to marketing communication in the expectation of the use/consumption of a product. This one could be heavily influenced by marketing communication.
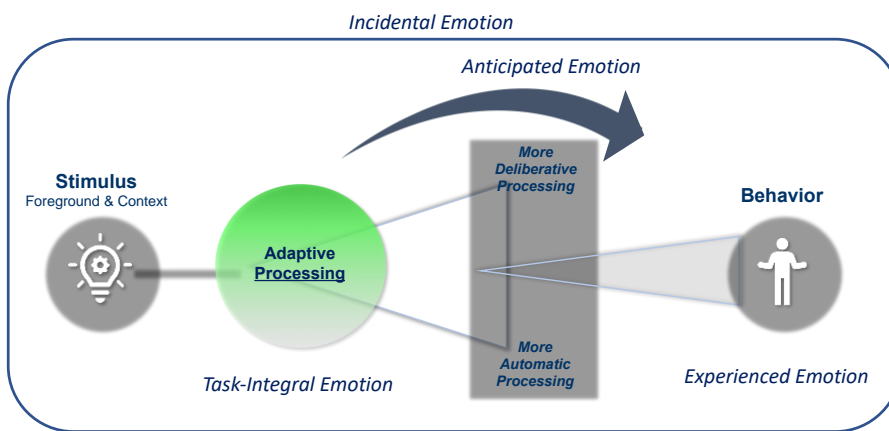

Figure 2: Representation of the different roles of emotion in DDMM

Emotional constructs are relevant as they can influence core processing strategies [22]. For example, certain incidental emotions like fear and sadness can increase the amount of vigilance and attention, leading to more deliberative decision strategies [23, 24]. Similarly, some decisions like choosing a car seat for the first child are inherently more emotional than others like choosing clothes, and lead to differences in degree of effort and processing [25]. Emotions can also influence goals and motivations. For example, given that anxiety is characterized by the appraisal theme of facing uncertain existential threats [26], it is often associated with the motivation to reduce uncertainty [27]. Sadness, by contrast, is characterized by the appraisal theme of experiencing irrevocable loss [28] and motivates one to change the current circumstances, perhaps by seeking rewards.

4. IMPLICATION FOR BRAND SUCCESS

The consumer research industry often uses the dual system process theory dichotomy to differentiate self-reported research methods, both quantitative and qualitive, as measures of System 2 processes, and neuroscience, biometrics, implicit or response time data as measures of System 1 processes. Although surveys rely on respondents' conscious answers to questions automatic and heuristic processes are at play and captured in the response. While neurophysiological data is able to capture processes that the respondent is not aware of, it will as well capture responses that have reached awareness. Cognitive processes are involved in all these different data sources, and emotion plays a relevant role in dynamic decision making at several levels.

The role of emotion in dynamic decision-making process is crucial to understand human behavior at different levels. The capacity to measure these emotional processes and integrate this measurement with other relevant data places Ipsos at the cutting-edge of research.

Measuring emotion might have predictive value but is unable to provide total understanding on its own. Ipsos prides itself in combining different data sources, including behavior, biometrics, neuroscience, survey, and qualitative research for the true and total understanding of markets, people, and society. Some studies have attempted to quantify the predictive value of combining measurement of emotion and other data sources. Venkatraman et al. [29], in collaboration with New York University and the ARF showed that the combination of neurophysiological measures and self-reported survey data in response to creative executions increases predictive power significantly.

A recent study conducted by the Ipsos GSO Lab [30] suggested that the integration of multiple neurophysiological signals, specifically the combination of GSR and HR provides richer and complementary insights: while GSR is effective in measuring emotional arousal, heart rate (HR) provides additional information on emotional valence and memory encoding. Additionally, this data provided preliminary insights suggesting that HR can potentially be an indicator of in-market advertising effectiveness.

With that in mind, promising applications of affective neuroscience constructs, such as anticipatory emotion, are now being prototyped across the Ipsos Organization for a wide range of application, from improving understanding and prediction of voter turnout, to inflict conflict on a purchase decision through an effective intervention.

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