

New Methods in Decision Neuroscience and their Application to Cross-Cultural Consumer Studies

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In this paper, we stress the contribution to basic knowledge of consumer behavior through Decision Neuroscience which combines the methods and theories of Behavioral Decision Making and Neuroscience. We will conclude by describing a planned cross-cultural study of consumer decision making using this approach. Decision Neuroscience represents a more fundamental conceptualization and understanding of the processes underlying decision making by providing converging evidence at the behavioral and neurological levels of the effects of manipulating decision variables. For example, Behavioral Decision Making researchers have provided new insights into consumer behavior by developing controlled tasks of risky decision making, immediate vs. delayed gratification, multiattribute-multioption choice, mental accounting, use of heuristics, and cognitive vs. emotional response systems. Neuroscientists have recently added the following to the mix of tools used to understand decision processes: 1) relating deficits in decision making in target patient groups to impairment of specific areas and circuitry in the brain, thus indirectly linking these areas and circuits to informed decision making; 2) developing brain scanning or imaging techniques such as fMRI to spatially localize brain functions for different behaviors; and 3) developing measures of subconscious emotional responses to temporally localize reactions in anticipation of and consequent to a current decision.

Examples of the joint development of controlled decision making tasks and neurological measures include tests of theories of the role of emotions in decision making. The "Iowa Gambling Task" was used to determine decision makers' ability to discriminate between risky situations that offer substantial immediate gains but long-term losses and situations that offer modest but steady gains. Patients with ventro-medial prefrontal cortex lesions which impair their ability to mark the memory of past feelings of loss or gain were unable to master the task and, furthermore, showed no anticipatory emotional reaction to the potential consequences of their choices (Bechara et al., 1997).

Conventional wisdom says that decisions should be made dispassionately in the absence of potentially disruptive feelings. However, studies such as these indicate that feelings can be an integral part of informed decision making. Indeed, the absence of feelings resulting from past experience led the patients to make decisions that went counter to their best interests, both in the laboratory and in their daily lives.

The background of research showing the critical role of feelings in the decisions of neurologically damaged patients led to attempts to manipulate the recruitment of emotional response systems in normal persons. One favored method is the employment of "cognitive load"—requiring research participants to memorize a series of numbers prior to making a

decision that typically involves both cognitive and emotional considerations. Shiv and Fedorikhin (2002) found that consumers who were placed under a cognitive load were more likely to choose a hedonic product (e.g., chocolate cake) over a utilitarian product (e.g., a healthy fruit salad). The reasoning here is that the memory task overloaded the cognitive system, disrupting the balance between cognition and emotion, and resulting in greater involvement of the emotional system in the choice.

Another direction in which this research is going is to examine the role of feelings in risky decision making—the choice between a sure gain or loss of a given magnitude and a gamble of equal expected value. A number of researchers have shown that decision makers are more apt to make the risky choice (choose the gamble) in the domain of losses than in the domain of gains (Kahneman & Tversky, 1979; Levin et al., 2002). That is, we are more apt to make a risky choice to avoid a loss than to achieve a gain, even though the risky choice could lead to an even greater loss. This phenomenon of “loss aversion” clearly implicates the role of anticipated feelings in pondering a current decision. Furthermore, Levin et al. (2002) showed that measures of difference in temperament such as emotional stability and extraversion are predictive of individual differences in response to risky decision making tasks. A logical extension of this research is to differences in temperament as a result of different cultural backgrounds.

Some studies suggest that persons in collectivist societies are better able to buffer losses resulting from risky choices than are persons in individualistic societies (Hsee & Weber, 2000). Some suggest that persons in some cultures in comparison to others have learned to accept delay of gratification and adopt a long-term perspective on decision-making. We proposed to evaluate whether persons who are in societies that better protect them from risk have developed the neural circuitry that reduces the emotional impact of anticipating potential losses, especially in the economic domain and especially when decision outcomes are apt to be delayed rather than immediate. Our methodology will include the following features: 1) use of research participants from societies selected on the basis of risk attitudes; 2) use of a variant of the Iowa Gambling Task which separates choices involving potential gains and choices involving potential losses and allows for the manipulation of immediate vs. delayed consequences; 3) use of cognitive load manipulations to increase the recruitment of the emotional response system; and 4) measurement of emotional reaction (skin conductance responses) in anticipation of as well as in consequence of risky choices with immediate vs. delayed consequences. We hope to demonstrate that these new methods will provide new insights into the involvement of feelings and emotions in consumer decision making, including the role of cultural influences.

This new research will allow us to address the following questions: Do persons from collectivist societies show lesser anticipatory emotional reactions to potential losses? (Are their brains “wired” so as to feel less emotion in these cases or are they acting “against their feelings?”) Do persons from societies with longer-term time orientation show lesser emotional reactions to delayed consequences? In short, can we learn from these studies whether cultural values concerning risk actually impact the functioning of neurological pathways in the brain that govern the role of our emotions in decision making?

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