

Embodied Cognition, Sensory Marketing, and the Conceptualization of Consumers' Judgment and Decision Processes: Introduction to the Issue

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People experience the world and interact with it through their bodily senses. This has mental and behavioral consequences. Most notably, the representation and use of information about the world depends on the sensory modality in which it was acquired and the motor modality in which it is enacted. Recent research in psychology and consumer behavior addresses the implications of this basic aspect of being in the world under the labels of *embodied cognition* and *sensory marketing* (for consumer-behavior-oriented overviews, see Krishna [2012], Krishna and Schwarz [2014a], and the contributions in Krishna [2009] and Krishna and Schwarz [2014b]). It highlights that cognition and sensorimotor experience are intertwined, with predictable consequences for consumers' thought, feeling, judgment, and behavior.

The novel phenomena documented in this area of work are difficult to reconcile with amodal models of the mind that have dominated consumer research since the 1970s' cognitive revolution in psychology. According to amodal models of information processing, all information is stored and used independent of the sensory modality in which it was acquired. This assumption is consistent with the computer metaphor that guided early information processing models (for a history, see Gardner [1987], and for an authoritative contemporary treatment, Lachman, Lachman, and Butterfield [1979]), but incompatible with accumulating evidence from behavioral and neuroscientific studies in the last two decades.

The emerging body of work's profound implications for how to properly conceptualize consumer judgment and decision making, unfortunately, have often received less attention than the cuteness and surprise value of the particular effects observed. This state of affairs reflects, in part,

that many bodily effects on higher-order mental processes are genuinely perplexing at first glance, especially as they pose challenges to long-embraced assumptions about the mind. It also reflects that embodiment researchers, ourselves included, focused on surprising phenomena that provide memorable challenges for mainstream theories. This is typical for early stages of scientific advances, where a "loosening" of traditional assumptions stimulates prolific experimentation, privileging surprising challenges over detailed explanations (Root-Bernstein 1989). Indeed, the bulk of the available research has highlighted that sensory experience matters but paid limited attention to competing assumptions about the underlying processes, despite the availability of clearly articulated, competing theories of embodied cognition. It is now time to enter the "tightening" phase of innovation to advance our understanding of the underlying processes (Lee 2016). The goal of this special issue is to turn the spotlight on these theoretical issues and to highlight their implications for understanding consumer behavior.

AN OVERVIEW OF THIS ISSUE

The present set of articles provides up-to-date reviews of what is currently known about a particular process or phenomenon. The range is wide, from fundamental processes across consumption contexts such as situated construction of preference (Rossi et al. 2017; Topolinski 2017), desire (Papies et al. 2017), meaning and attitude (Briñol et al. 2017), to processes of relevance to specific domains, such as satiation in food consumption (Cornil 2017) and creativity enhancement through sensory experience (Zhu and Mehta 2017), to bodily processes with complex manifestations such as multiple meanings of verticality (Cian 2017)

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and diverse forms of contagion (Huang, Ackerman, and Newman 2017). The myriad topics covered in these articles bring forth several key insights for revising traditional models of consumer judgment and behavior and for specifying processes of embodied cognition and sensory marketing.

1. *Basic affective orientations like approach and avoidance arise from the body as much as the head.* They can be triggered not only by cognitive evaluations of good and bad, but also by subtle sensorimotor experiences such as motor proprioception in arm flexors versus extensors (Briñol et al. 2017), mental simulation of consumption (Papies et al. 2017), and oral articulation patterns resembling ingestion versus expectoration (Rossi et al. 2017; Topolinski 2017).

In this special issue, Papies et al. (2017) explore how modality-specific inputs from the entire body may underlie simulation processes that give rise to desire (approach tendency) and its outcomes. They discuss how both conscious and nonconscious simulation of consumption and reward can result in motivated behavior impacting consumer choices, particularly in the context of appetitive food stimuli. One example they provide is work by Elder and Krishna (2012), who show that consumers find it easier to mentally simulate eating a dish when a fork is placed on the dominant-hand side (vs. the non-dominant-hand side). The mental simulation of picking up the food with the fork, according to Papies et al., triggers reward processes in the brain, resulting in higher purchase intention for the food.

Even sensorimotor activities as subtle as the articulatory sequence of consonants in a single word are capable of triggering approach and avoidance tendencies, as they resemble food consumption experiences. Inward oral movement is associated with food intake, whereas outward oral movement is associated with food rejection, as illustrated in Topolinski's (2017) review of the pervasive influence of oral articulatory movements on consumer attitudes. It has been shown that words or brand names that have inward (vs. outward) articulation direction (e.g., BAKO vs. KABO) are more likable and valuable. Further supporting this hypothesis, Rossi et al. (2017) present five studies demonstrating that inward (vs. outward) food names result in better perceived taste and greater consumption of the food. Robustness of the phenomenon is shown by testing it in different languages, with words only, with words and pictures, and with actual products.

Still in the context of food consumption, but shifting attention from desire to satiation, Cornil (2017) introduces the need to distinguish satiation from other concepts that are often used interchangeably but in fact refer to differ-

ent things: satiety, habituation, pleasure, and fullness. He summarizes and compares the merits of various methods for studying satiation: ad libitum food intake, the preload method, and constrained food intake and eating enjoyment. He reviews factors that have been shown to impact satiation, from external cues (e.g., food composition, portion sizes) to internal signals (e.g., awareness and memory of meals).

Eaters may stop eating because they are satiated, or because they are disgusted by the food or by anything else in the situation. In fact, disgust has far more elicitors than distasteful food or putrid matters, and disgust responses extend far beyond oral-nasal rejection and general avoidance (Lee and Ellsworth 2013) to social and consumer phenomena such as moral hypervigilance (Jones and Fitness 2008) and product contagion concerns (Argo, Dahl, and Morales 2006). Starting with the seminal work by Rozin on disgust (Rozin, Millman, and Nemeroff 1986; Rozin and Fallon 1987), Huang et al. (2017) review contagion research conducted in the last two decades. Unlike earlier reviews on contagion effects, which focused on the transfer of essences via physical touch of objects, Huang et al. also cover phenomena where no physical touch is required for objects to transfer their essences, and the essences can be positive or negative. For example, consumers prefer earlier serial numbers in limited prints of famous artists (e.g., 3/10,000 is preferred to 6,532/10,000) because earlier numbers are perceived to be closer to the artist, and more of the artist's (positive) essence is transferred. Contagion effects are found to be generalizable from the transfer of negative essences through physical touch to the transfer of negative or positive essences, with or without physical touch.

2. *How a given sensorimotor experience influences judgmental and behavioral outcomes is context-sensitive and malleable.* For example, Cornil (2017) reports that the influence of the sensorimotor experience of food intake on satiation depends on the eater's awareness: the more people attend to the intake process and the more they remember it afterward, the more satiated they feel.

Many sensorimotor inputs are open to multiple interpretations, which is evident in the studies on conceptual metaphors. Conceptual metaphors have received much attention in embodied cognition research, likely because of their intriguing power to link two apparently dissimilar domains to each other (e.g., physical temperature and interpersonal affection, Williams and Bargh 2008; fishy smells and social suspicion, Lee and Schwarz 2012), with consequences for judgment and decision making (Lee and Schwarz 2014) and

many aspects of social life (Landau, Robinson, and Meier 2014). Most articles in this area of work, however, consider only a single metaphorical association of a single bodily state (e.g., “Morality Is Cleanliness,” “Good Is Up”). In reality, many bodily states have multiple metaphorical associations. A prominent example is verticality. Being high up there, as Cian (2017) points out, is metaphorically associated with diverse meanings such as being powerful, divine, moral, rational, abstract, and good. Cian discusses how a single bodily state can have so many conceptual metaphorical associations. Offering a methodological toolbox, he provides a taxonomy of verticality manipulations. Using verticality as a case in point, he also highlights the need for research to distinguish between linguistic and conceptual metaphors and to identify when metaphorical effects run unidirectionally from body (e.g., up) to mind (e.g., powerful) and when they run bidirectionally between body and mind.

While the prior articles have implicitly assumed that embodiment effects work in the same way across individuals and contexts, Briñol et al. (2017) review evidence that the same bodily state can have different effects as a function of individual and contextual differences. For instance, classic work in embodiment shows that arm extension (vs. flexion) is associated with avoidance (vs. approach), which renders negative (vs. positive) feelings. Briñol et al. delve into varying meanings of such movements to show context effects. They suggest that arm extension can be seen as a sign of approach rather than avoidance in some contexts (e.g., to reach a desired object). Once the meaning of arm extension becomes approach, its attitudinal effects become positive. As another example, confident postures increase self-esteem—but only if people are thinking about their strengths; if people are thinking about their weaknesses, the same postures decrease their self-esteem instead (Briñol, Petty, and Wagner 2009), presumably because the postures confer a sense of confidence about one’s own thoughts at the moment, whatever the thought content is. Such metacognitive flexibility presents an important caveat and highlights the need for embodiment researchers to make more nuanced predictions by taking individual and contextual variations into account.

3. *Higher-order cognitive processes like metacognition and creativity can be enhanced or impaired by bodily actions and states.* For example, the metacognitive process of validating one’s own thoughts is heightened (vs. undermined) if one jots down thoughts on a sheet of paper and then keeps (vs. discards) the sheet (Briñol et al. 2012). The creative process of coming up with novel functions for familiar objects is enhanced (vs. disrupted) if one is in a messy (vs. tidy) room

(Vohs, Redden, and Rahinel 2013). Zhu and Mehta (2017) review research that seeks to enhance creativity by leveraging the five most well-known bodily senses (sight, sound, smell, touch, taste), on the basis of which they also summarize previously proposed mechanisms and raise new questions about how the five senses may interact or compete with each other in exerting their influence on the mind. This, in conjunction with many of the present articles, is aligned with the goal of our special issue—to spur creative work on mind-body relations (“wow”) that advances the field of embodied cognition into stage 2 of the scientific cycle (“how”).

CONCLUSION

Taken together, the articles included in this special issue indicate that many embodiment findings are compatible with familiar principles of information processing, from the roles of accessibility, applicability, and “aboutness” in information use (for reviews, see Higgins 1996, 1998) to the application of lay theories to interpretation of experiential information (for a review, see Schwarz 2010) to the determinants of assimilation and contrast effects (for a review, see Bless and Schwarz 2010). How the operation of these and other familiar principles of social cognition research is best conceptualized in a grounded cognition framework is a topic of ongoing theoretical discussion (Barsalou 2016; Lee 2016; Papies et al. 2017). In addition to social cognition research, there is much to learn from the long tradition of research on emotions and physiological responses (Zillmann 1971). As most sensorimotor experiences evoke not only cognitive responses (e.g., metaphorical associations) but also acute physiological and emotional responses, their integration in a broader theoretical framework needs further attention.

An upshot of such integrative attempts is that although many memorable effects reported in the embodiment literature appear irrational at first glance, they may reflect the operation of adaptive processes. For example, consumers are less willing to taste a cookie if the cookie box has touched a box of tampons in the shopping cart (Morales and Fitzsimons 2007). As Huang et al.’s (2017) discussion of contamination suggests, such hesitation seems more sensible when viewed as the outcome of a defense mechanism against disease threats such as potential infection by pathogens. That the mechanism errs on the cautious side is an adaptive outcome of evolutionary forces. Similarly, people’s attempts to wipe off their sins (Zhong and Liljenquist 2006) and doubts (Lee and Schwarz 2010) by cleansing their hands is

presumably grounded in an adaptive mechanism that separates physical contaminants from the body (Dong and Lee 2017). The potential adaptive value of embodied mechanisms that underlie apparently irrational phenomena is a fruitful avenue for future research.

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