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Research Article

Embodied cognition and social consumption: Self-regulating temperature through social products and behaviors

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Abstract

Extant embodied cognition research suggests that individuals can reduce a perceived lack of interpersonal warmth by substituting physical warmth, and vice versa. We suggest that this behavior is self-regulatory in nature and that this self-regulation can be accomplished via consumptive behavior. Experiment 1 found that consumers perceived ambient temperature to be significantly lower when eating alone compared to eating with a partner. Experiment 2 found that consuming a cool (vs. warm) drink led individuals to generate more socially-oriented attributes for a hypothetical product. Experiment 3 found that physically cooler individuals desired a social consumption setting, whereas physically warmer individuals desired a lone consumption setting. We interpret these results within the context of self-regulation, such that perceived physical temperature deviations from a steady state unconsciously motivate the individual to find bodily balance in order to alleviate that deviation.

Keywords: Embodied cognition; Temperature; Social consumption; Social products; Self-regulation

Introduction

A recent surge of psychology research examines an essential link between physiological experiences and social perceptions, behavior, and judgments (Bargh & Shalev, 2012; Fay & Maner, 2012; Hong & Sun, 2012; Steinmetz & Mussweiler, 2011; Williams & Bargh, 2008; Zhong & Leonardelli, 2008). These results are consistent with the emerging field of embodied cognition, which argues that our metaphorical understanding of concepts is grounded in, and can be influenced by, the physical experiences of our environment (Barsalou, 1999; Neidenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005; Williams, Huang, & Bargh, 2009; Wilson, 2002). Much of the extant embodied cognition literature in this domain focuses on the link between physical warmth or coldness and its relation to social relationships. For instance, physical warmth positively influences social perceptions, social trust, and social proximity (IJzerman & Semin, 2009; Williams & Bargh, 2008), while feeling lonely (i.e., social exclusion) relates to perceptions of physical coldness or desire for warm remedies (IJzerman & Semin, 2010; Zhong & Leonardelli, 2008). That is, experiencing physical warmth relates to interpersonal affection whereas experiencing physical coldness relates to exclusion and self-centeredness (Williams & Bargh, 2008). In addition, this link is bidirectional in nature (Zhong & Leonardelli, 2008), in that physiological experiences affect social affiliation as much as social experiences affect physiological reactions.

This bidirectional link between social affiliation and physiological warmth has been argued from a variety of perspectives. One of the prevailing views is the conceptual metaphorical perspective (Barsalou, 2008; Gibbs, 1994; Lakoff & Johnson, 1980, 1999), which argues that individuals jointly experience both abstract and physical concepts and subsequently conflate the two. Coupled with findings from embodied cognition, when individuals experience physical warmth, they feel closer to others, whereas when individuals feel cold, they feel psychologically

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more distant. Indeed, we often refer to "warm" individuals as trusting and generous, whereas "cold" individuals are competitive and untrustworthy (Fiske, Cuddy, & Glick, 2007; Williams & Bargh, 2008). Statements such as "*I'm giving you the icy stare*" or "*we are on thin ice*" carry a negative omen of hatred or breakage of friendship in an interpersonal context while "*she is warm and friendly*" or "*our relationship is heating up*" represents a positive tone of attractiveness and affection in the same context. Further, studies show differences in bodily temperature based on people's personalities and their social environment. When participants are with similar others, they experience the ambient temperature to be higher (IJzerman & Semin, 2010), while social exclusion leads individuals to feel colder (IJzerman et al., 2012; Zhong & Leonardelli, 2008). This explains why people may feel greater "warmth" around their loved ones (e.g., families and friends) and "coldness" around those they dislike.

Moreover, the link between physical and social warmth is supported by research in biology and neuroscience. Social neuroscience research shows greater activation within the participants' left anterior insula during a social trust exercise after touching a cold pack, identifying the insula as a neural substrate that mediates the link between temperature and social trust (Kang, Williams, Clark, Gray, & Bargh, 2011). In another study, hand skin temperature decreased after participants were confronted with personally threatening questions (Rimm-Kaufman & Kagan, 1996). That is, when potential for interpersonal relations is compromised, people experience a drop in body temperature. Taken together, the linguistic coupling of metaphors reflects people's predisposition to experience a physiological change in social situations (Zhong & Leonardelli, 2008). This view ultimately suggests that language and our higher order cognitions are grounded in human behavior and physical contexts (Glenberg, 1997; Glenberg & Kaschak, 2002).

Embodied cognition and self-regulation

Work exploring embodiment and conceptual metaphor theory within social psychology and marketing has typically been descriptive, rather than explanatory (Meier, Schnall, Schwarz, & Bargh, 2012). Certainly, literature has focused on exploring the interesting effects related to embodied psychology, but has yet to truly understand the mechanisms, boundary conditions, or mediators underlying them. Despite all the evidence exploring embodied cognition, no major theory has yet emerged to explain it (Neidenthal et al., 2005; Smith & Semin, 2004).

Some views in embodied psychology have argued that embodied manipulations activate concepts and increase the accessibility of related ideas. For instance, holding a warm cup of coffee influences individuals to rate others as having a 'warmer' personality (Williams & Bargh, 2008). Furthermore, inducing suspicion results in greater accessibility of fish-related words and detection of fishy smells (Lee & Schwarz, 2012). However, other research is not easily understood with such an explanation. Indeed, Lee and Schwarz (2012) have noted that physically cleansing oneself (Lee & Schwarz, 2010a; Zhong & Liljenquist, 2006) decreases one's guilt but being primed has no effect. Rather, that research appears to be better understood through a self-regulatory explanation.

Although the term self-regulation has come to refer to self-control for many social psychology and marketing researchers (Baumeister, Heatherton, & Tice, 1994), we use self-regulation to refer to corrective behavior that achieves physical or psychological balance. One example of a self-regulatory embodied process comes from Kouchaki, Gino, and Jami (2013) who showed that not only did wearing a heavy backpack intensify feelings of guilt (e.g., heavy burden to bear), but individuals also were more likely to choose a healthy snack and less likely to cheat, ostensibly to self-regulate those feelings of guilt. Demonstrating the bi-directionality of this effect, individuals can regulate emotions such as guilt or dissonance through embodied metaphorical actions such as washing one's hands (Lee & Schwarz, 2010b; Schnall, Benton, & Harvey, 2008; Zhong & Liljenquist, 2006) and show a greater desire for products that allow them to do so (Lee & Schwarz, 2010a).

Other researchers argue that physical states can affect psychological processes such as perception, in order to regulate one's behavior towards optimal outcomes (Balcetis & Dunning, 2010; Bhalla & Proffitt, 1999). For example, Proffitt and colleagues (Bhalla & Proffitt, 1999; Proffitt, Stefanucci, Banton, & Epstein, 2003) demonstrate that when individuals are fatigued they will see hills as steeper and distances as farther, whereas Balcetis and Dunning (2010) showed that objects such as a water bottle are perceived as closer when they are more desirable (e.g., when people are thirstier). More related to the current research, work with temperature demonstrates that individuals who are induced to feel lonely seek to regulate these feelings of exclusion with a greater desire for warm drinks and food (Zhong & Leonardelli, 2008) or through behavior such as warm showers and baths (Bargh & Shalev, 2012).

Furthermore, research has demonstrated that psychological embodied manipulations can affect physiological experiences and vice versa. For example, being socially excluded results in lower skin temperatures but holding a warm cup can alleviate this effect (IJzerman et al., 2012). Thus, if we have an innate tendency to maintain balance with respect to physiological changes such as temperature, then metaphorical embodied manipulation of temperatures should result in the same processes. Specifically, individuals can use physical objects to self-regulate psychological deviations from a state of balance. Conversely, an individual might respond to a physical imbalance by unconsciously behaving in ways that result in a psychological response consistent with alleviating that imbalance. Physical objects used to self-regulate a psychological imbalance should be related to some attribute of the source of the deviation. In many instances, this manifests itself as *desire* for that physical object (Aarts, Custers, & Holland, 2007; Förster, Liberman, & Friedman, 2007; Higgins, 1987). Hence, as psychological discrepancy increases, so does the desire for a related object.

While some of these results are interpretable within a consumption context (e.g., mouthwash, water bottle), no research in this domain specifically investigates consumption behaviors (context or product attributes) as a solution for this