DOI: 10.1002/arcp.1002

RESEARCH REVIEW

WILEY CONSUMER PSYCHOLOGY REVIEW

Conceptual metaphors shape consumer psychology

Mark J. Landau[1] | **Chen-bo Zhong**[2] | **Trevor J. Swanson**[1]

[1]Department of Psychology, University of Kansas, Lawrence, KS, USA

[2]Rotman School of Management, University of Toronto, Toronto, Canada

Correspondence
Mark J. Landau, Department of Psychology, University of Kansas, Lawrence, KS, USA.
Email address: mjlandau@ku.edu

Funding information
National Cancer Institute, Grant/Award Number: R01CA185378

Abstract

Marketers routinely use metaphors to compare abstract concepts to concrete concepts in remote domains. For example, a tagline "Supercharge your day" compares energy to electricity. Such messages aim to change consumer attitudes and behavior, but what impact do they have? According to Conceptual Metaphor Theory, metaphors can shape thought by borrowing knowledge of a concrete concept to understand and relate to an abstraction, despite their superficial differences. Supporting this claim is growing evidence that exposure to metaphoric messages prompts recipients to construe the metaphor's abstraction in ways that are analogous to the salient concrete concept. This article presents a selective review of this literature, focusing on studies pertaining to product evaluation and consumption attitudes. Discussion looks across findings to identify questions for future research. Taken as a whole, this research illuminates how, when, and for whom metaphoric messages are persuasive, with theoretical and practical implications for marketing, design, and persuasion.

KEYWORDS
consumer psychology, embodied cognition, marketing, message framing, metaphor, persuasion

1 | INTRODUCTION

Consider the logo for Target's in-house product line (Figure 1). We see an "up" arrow printed with the brand label "up & up." Seemingly straightforward, this message raises important questions about consumer psychology. What do the words and imagery intend to communicate? What cognitive processes do consumers use to interpret them? To answer these questions, we must appreciate that metaphor is a tool for thinking and not, as traditionally assumed, a mere linguistic frill (Kövecses, 2010; Lakoff & Johnson, 1980). Thinking with metaphor enables one to conceptualize abstract qualities such as *goodness*, *purity*, and *status* in concrete terms as high regions of space or upward motion, even in the absence of literal changes in vertical location. Because the conceptual metaphor *good is up/bad is down* organizes cognition automatically and unconsciously (Meier, Robinson, & Clore, 2004), consumers can effortlessly decode Target's logo to infer a product's quality—and perhaps a suggestion of moral superiority. The same metaphors make it possible to understand marketing phrases such as *upgrade*, *on the rise*, *top of the line*, *dress up*, *top shelf*, *low quality*, and *moral decline*.

This is an example of how the study of metaphor provides insights into the mental processes by which people engage their consumer environment. Yet it is only one illustration of the central claim of this article: Metaphoric thinking exerts a significant and far-reaching influence on consumer thought and behavior. To back up this claim, we build on detailed linguistic analyses cataloguing the metaphors commonly used to represent a wide range of abstractions, from basic concepts such as *time* and *causation* to more specific ideas such as *happiness*, *freedom*, and *authenticity* (e.g., Goatly, 2011; Kövecses, 2005; Lakoff & Johnson, 1999). More proximally, we look to burgeoning lines of research that apply experimental methods to examine metaphor's role in impression formation, judgment and decision making, and action planning (Landau, 2017). Although this work has enriched various disciplines (Gibbs, 2008), its relevance for marketing and consumer psychology has yet to be formally acknowledged. To fill this gap, we bring together several findings to address key questions: How do metaphors influence which products people like and don't like? When do metaphors work in expected ways, and when do they fall flat or even backfire? Can the same metaphor affect people in different ways, and why?

© 2017 Society for Consumer Psychology

FIGURE 1 Target advertisement utilizing the *good is up* metaphor to imply product quality. [Color figure can be viewed at wileyonlinelibrary.com]

First, a disclaimer: Experimental studies of metaphor have yet to concentrate on the types of outcomes that are currently standard in the consumer literature. Only a few of the reviewed studies explicitly measure product evaluations; fewer still model willingness to pay or purchase likelihood as dependent variables. We ask the reader to appreciate that our goal is not to make a conclusive empirical case that metaphor matters; it is to sketch some outlines for a richer, more empirically generative consumer psychology. To this end, we review studies examining responses to stimuli that stretch the mainstream definition of *product* to encompass, for example, political candidates and policy proposals.

2 | THEORETICAL AND EMPIRICAL BACKGROUND

Because the reviewed studies use diverse methods, they need to be organized within a theoretical framework. We utilize Conceptual Metaphor Theory because it is influential across disciplines and empirically substantiated. This theory posits that metaphor is a cognitive tool for understanding—and not just talking about—one concept in terms of a superficially dissimilar concept (Kövecses, 2010; Lakoff & Johnson, 1980). Some terminology is helpful: A metaphor's *target* concept is abstract and difficult to grasp, whereas its *source* concept is relatively concrete and easily understood. Many sources derive from sensorimotor states and well-learned interactions with the physical environment, such as walking, eating, and grasping. Others refer to commonplace, stereotyped knowledge of cultural products and activities, such as the parts of a building, the rules of baseball, or the dynamics of a stage play.

At a process level, metaphor supports understanding by creating a mapping that uses select elements of source knowledge to structure representations of a target. In this way, thinking with metaphor transfers source knowledge as a template for understanding and relating to the target, even though the two concepts are superficially dissimilar. A mapping is partial and selective, meaning that target elements that share analogs with the source are highlighted in attention, whereas those that do not are downplayed or inhibited.

To illustrate, one might use metaphor to understand the elusive process of overcoming substance addiction (the target) in terms of military combat (the source). The mapping created by that metaphor transfers a template implying that one is a *warrior*, therapy is a *weapon*, cravings are *enemy combatants*, *victory* justifies *casualties*, and so forth.

Conceptual Metaphor Theory is supported by over 40 years of research across the cognitive sciences and humanities demonstrating metaphor's far-reaching impact on culture and cognition (Gibbs, 2008). A subset of this research tests metaphoric influences using experimental methods (Landau, 2017). Although diverse, these methods are based on the same theoretical logic: Unlike a simple association or spreading activation, an activated metaphor is expected to transfer an *organized system of knowledge* about the source—its features and their relations—to guide target processing. To illustrate this reasoning, imagine that something in a person's environment activates a conceptual metaphor comparing romantic dating to a competitive sport such as baseball—a metaphor reflected in expressions such as "Knock this one out of the park." We would expect that person to transfer their sports knowledge—encompassing such elements as scores, players, competition, bases, and turn-taking—to construe analogous aspects of dating. If, alternatively, the metaphor operates as a one-off association or peripheral cue (Petty & Cacioppo, 1986), it may produce globally positive or negative feelings linked to sports, but it won't guide the person to systematically conceptualize dating (what it is, how it works) as though it were a kind of sport.

One method based on this reasoning is that manipulating how people understand or experience a source will transfer across a metaphor's mapping to change how they process analogous target information. Boroditsky and Ramscar (2002) used this method to test whether people conceptualize the passage of time metaphorically in terms of tangible objects moving in physical space (as reflected in expressions such as "Those days are *behind me*"; "We're approaching New Year's."). One group of participants was asked to propel themselves across a room in a rolling chair. This was intended to prime representations of the self's forward movement. The others pulled the chair toward themselves with a rope, bringing to mind images of approaching objects. They were then asked an ambiguous question: "Next Wednesday's meeting has been *moved forward* two days. What day is the meeting now that it has been rescheduled?" As predicted, their answers corresponded to recently primed spatial concepts. Those who had just moved forward imagined themselves hurtling forward in time, thus perceiving Wednesday's meeting as moving to Friday. Those primed with approaching objects perceived the meeting as leaping toward them from Wednesday to Monday. It would be difficult to explain these effects as simply due to conventional ways of talking about time.

They instead suggest that people systematically transfer knowledge of moving objects to conceptualize time.

Another method is to manipulate *metaphoric framing* by exposing people to a message that includes metaphoric language/imagery versus an equivalent literal or alternative-metaphoric message. Exposure to metaphoric framing consistently results in source-consistent changes in target perception, memory, and attitudes (Landau, 2017; Landau, Robinson, & Meier, 2014c). For example, participants who read an article comparing a city's crime problem to an aggressive beast recommended punitive crime-reduction strategies, whereas those who read the same facts framed in disease-metaphoric terms recommended strategies addressing crime's root causes (Thibodeau & Boroditsky, 2011). The messages did not explicitly mention crime reduction strategies, suggesting that metaphoric framing exposure prompted participants to transfer knowledge of a salient source to conceptualize a problem in a different domain.

With this theory and research as background, we may turn to consider metaphoric influences on consumer outcomes. We have divided our review into two sections, the first discussing a variety of ways in which metaphors can affect product evaluations, the second examining how metaphoric habits of mind inform attitudes toward one's own consumption.

3 | PRODUCT EVALUATION

To better situate our review in the consumer literature, we build on the burgeoning study of sensory marketing (Krishna, 2009). As background, companies and product designers increasingly accentuate or highlight the sensuality of products—their touch, taste, smell, sound, and look. They know that while consumers care about cost, quality, and function, they increasingly respond to a product's look and feel, also called "aesthetics." One writer summed up this trend: "Aesthetics is more pervasive than it used to be—not restricted to a social, economic, or artistic elite, limited to only a few settings or industries, or designed to communicate only power, influence, or wealth. Sensory appeals are everywhere, they are increasingly personalized and they are intensifying. When we decide how next to spend our time, money, or creative effort, aesthetics is increasingly likely to top our priorities" (Postrel, 2003, p. 5).

Observing this trend, researchers recently began charting consumers' engagement with the sensory aspects of consumable products (Krishna, 2009). We propose that this development can benefit from acknowledging metaphor's role in everyday thought and behavior. In many cases, the meaning of a product's sensory properties—whether it be the music, the aromas, the surfaces, or the graphics—relies on a metaphor linking those properties to abstract ideas that are superficially unrelated and even irrelevant. For example, a tech gadget's clean, glossy surface may connote moral purity, while a "roof" logo for an investment company conveys protection against financial risk, not the elements in any literal sense. Of course, many sensory-induced meanings are likely *not* metaphoric, relying instead on straightforward associations: The feel of wood trim in a car conjures luxury; a pink ribbon on a stapler signals a charity opportunity (Krishna, 2009, p. 5); images of Albert Einstein signify a cultural myth of heroic genius. Still, we submit, many sensory properties communicate through metaphor.

Also common are consumer messages that use metaphoric language to emphasize or bring attention to representations of sensory qualities, even in the absence of direct sensory experiences (Forceville & Urios-Aparisi, 2009). Such metaphors are used in the service of packaging, marketing, advertising, and mass communication campaigns. As an informal presentation, the current author recorded the following within a couple days:

- Television commercials encouraging viewers to *move forward* (e.g., Figure 2), *let go*, and *climb aboard*; ads claiming that products *strike back* (e.g., against acne).
- A mass mailing describing a sales event as *in full bloom*.
- A podcast story about political groups *strengthening their base* and *breaking through*.
- A public service announcement on a streaming music station describing nicotine addiction as a *weight around your neck*.
- Text on packages promising to *keep you on course*, *brighten* your mood, and *fuel* your day.
- Internet advertisements for services that help you *grow*, *put the pieces together*, and avoid *losing your grip* or *exploding*.

Precise estimates of metaphor's frequency in consumer messages are not available (to our knowledge), but it is estimated that somewhere between 8% and 18% of English discourse is metaphoric (Steen et al., 2010). Thus, we can be confident that metaphor is big business.

Or can we? It is possible that such messages are merely figures of speech and visual tropes that have hardened into cultural clichés, revealing nothing important about how people evaluate and relate to products. Suppose Claire reads a billboard saying that a car sale is "heating up." She may interpret this as a mere idiom for urgency and

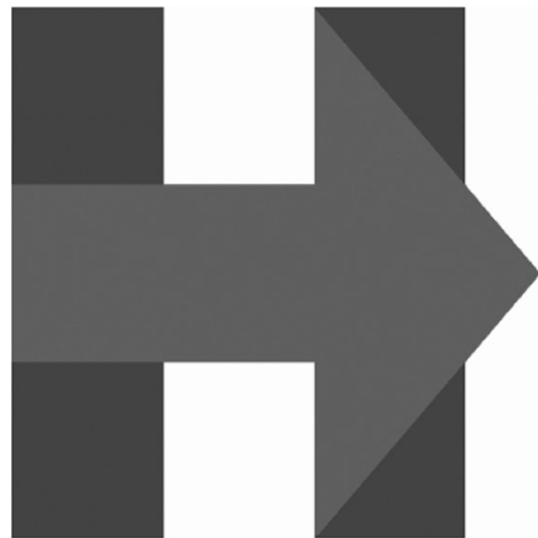


FIGURE 2 In the logo for Hillary Clinton's 2015 presidential campaign, the rightward arrow reflects the conceptual metaphor *political progress is forward (rightward) motion*

represent the sale in its own, literal terms without calling up tactile representations of heat. To address this deflationary possibility, we need to "peek under the hood" of communication to get more stringent tests of whether sensory metaphors shape product evaluation. Researchers have done just that in cleverly designed laboratory experiments. The sections that follow review some of these studies, organizing them around various specific metaphors studied thus far.

3.1 | Goals are destinations

Many products and services are advertised as helping consumers achieve a long-term goal, such as losing weight or quitting smoking. One communication strategy is to encourage consumers to imagine a desired future goal in the form of a possible identity—an image of the self that one could become, such as "me being more assertive at work" or "me as financially independent" (Markus & Nurius, 1986; Touré-Tillery & Fishbach, 2018). However, conjuring up an image of a desired possible identity is sometimes not enough to motivate goal-directed action in the present (Oyserman, Bybee, Terry, & Hart-Johnson, 2004).

The critical and often missing element needed to increase goal engagement is the perception of a strong connection between a salient possible identity and one's current identity (Oyserman, 2015). That is, people must believe that their choices and actions in the present—including, presumably, their purchases—can help to realize a better version of themselves in the future. If this connection feels weak or vague, then consumers may feel as though they can put off goal-relevant purchases until later. The question then becomes how to help people conceptualize the connection between the person they are now and hypothetical identities projected far into the future.

Metaphor may be helpful here. People can be encouraged to conceptualize goal pursuit metaphorically as a physical journey along a continuous path leading up to their possible identity. This metaphor may transfer the knowledge, learned from routine bodily experiences, that reaching a far-off destination depends on steps taken now. This helps them visualize that goal-directed activities in the present determine whether or not they attain long-term goals (despite those things not existing in space).

Does the journey metaphor reinforce continuity between a current identity and a possible identity, and thereby affect product evaluation? In a series of studies testing this possibility, Landau, Oyserman, Keefer, and Smith (2014b) had college freshmen imagine themselves in the future as accomplished graduates. Compared with students led to represent that possible identity without a provided metaphor, those who visualized it as a destination on a path (Figure 3) saw it as more strongly connected to their current identity. Furthermore, by strengthening perceived continuity between current and possible identities, a salient journey metaphor increased students' interest in enrolling in a paid workshop advertised as helping them excel on their final exams.

In light of these findings, it is for good reason that the journey metaphor is commonly used in a wide range of consumer communications ranging from greeting cards to informational brochures for financial planning services. These messages may be effective at subtly prompting recipients to apply their bodily experiences with motion along paths to grasp how their purchases today bear on their personal developments "down the road."

The journey metaphor might affect product evaluation and consumer satisfaction in other ways. Consider that people commonly talk about romantic love metaphorically as a shared journey (e.g., "I *look back* and *see* we've *come a long way* together"; "We're *stuck*, and should *go our separate ways*"; Lakoff, 1993). Yet another common metaphor compares love to a physical *union*—a merging or fusing of two objects into a whole entity (e.g., "Are you two *an item/unit*?"; "Ari and I are *one*"; Kövecses, 1991).

Although they may seem like mere figures of speech, these metaphors affect how people respond to conflict in their close relationships. Lee and Schwarz (2014) hypothesized that if people conceptualize a relationship as a physical bond or union, as compared to a journey, they'll judge conflict as especially damaging to the relationship's health. The researchers reasoned that most people have learned from routine interactions with common objects (e.g., mugs, staplers) that a crack, tear, or hole signals irreparable damage, whereas they expect that a typical journey will include "ups and downs" and "twists and turns." In line with this reasoning, participants who read linguistic expressions framing love as union (vs. a journey), and then recalled a time of conflict with their partner, were less satisfied with that relationship. A follow-up study showed that when participants read about another couple going through conflict, those exposed to pictorial depictions of unity (vs. journey) judged that relationship as in worse shape.

These findings have implications for marketing. Imagine that an online dating service attempts to entice consumers by depicting love as a union of two solid objects into one. It is highly likely that a partnership initiated through this service will eventually face conflict. Dating partners expecting their relationship to be a solid, indivisible unity may

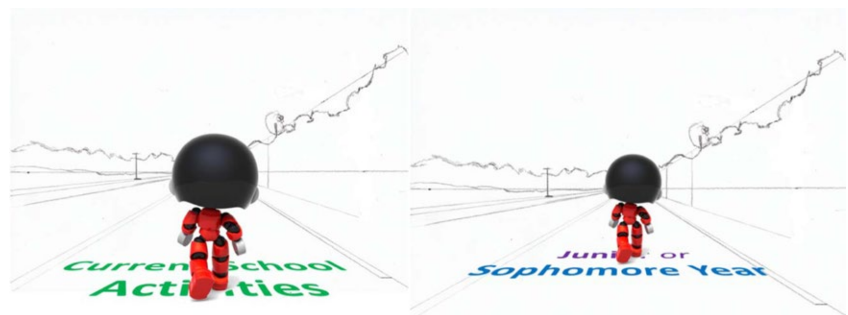


FIGURE 3 A future identity framed with a *journey* metaphor felt more connected to a current identity, which in turn increased interest in a workshop advertised as aiding goal attainment (Landau, Keefer, & Rothschild, 2014a; Landau et al., 2014b). [Color figure can be viewed at wileyonlinelibrary.com]

be that much more distressed by this conflict and, consequently, dissatisfied with the service that started it all. A safer messaging approach would frame love as a journey (or several other conventional sources; Kövecses, 1991). With that metaphoric image in mind, consumers may be more satisfied in the long-term when their journey hits a *rough patch* or a *dead end*.

3.2 | Hope is light

Retail settings, websites, and other consumer environments strategically employ light and shading to create various effects. Of course, many such effects, such as affording mobility, do not involve metaphor. Still, in many cases light conveys abstract meanings by means of metaphoric associations (Kövecses, 2010). One such meaning is hope. The metaphor *hope is light* is reflected in expressions such as "*the light* at the end of the tunnel," "*brighter days* are ahead," and "it's always *darkest* before the *dawn*." The same metaphor finds more eloquent expression in Martin Luther King Jr.'s quote: "Five score years ago, a great American, in whose symbolic *shadow* we stand today, signed the Emancipation Proclamation. This momentous decree came as a *great beacon light of hope* to millions of Negro slaves….It came as a joyous *daybreak* to end the *long night* of their captivity" (King, 1963, italics added).

Such expressions may reflect a conceptual metaphor representing hope in terms of light and dark. Although hope and hopelessness are not light and dark in a literal sense, this metaphor is not arbitrary; it capitalizes on structural similarities between those experiences. A sense of hope implies that one can identify a positive future outcome and at least the outlines of a procedure for realizing that better state. This scenario is analogous to being in an unpleasantly dark environment and being able to see an illuminated exit.

This reasoning suggests that feelings of hope and light sensations will mutually influence each other in metaphor-consistent ways. Supporting this hypothesis, Dong, Huang, and Zhong (2015) found that participants who felt more hopeless about their economic future reported greater preference for brighter light bulbs. Presumably, participants who felt hopeless experienced their environment as darker and preferred brighter lighting to compensate. The authors replicated this finding in the field. Using a longitudinal survey, they found that individuals who experienced greater hopelessness towards their financial future tended to consume more daily electricity on lighting. Moreover, this was not due to a general increase in electricity consumption, because electricity consumption in other areas (e.g., kitchen appliances) did not vary with levels of hopelessness (Dong, Huang, & Zhong, 2017).

Extrapolating from these findings, we can predict that lighting in retail contexts will influence product evaluation in metaphor-consistent ways. Because brightness induces a sense of hopefulness, a key component of goal achievement, consumers looking to buy tools to solve daunting problems might be more likely to evaluate those products positively in bright versus dim lighting. Think about an individual considering a power drill as part of a toolset for building a house. This seemingly insurmountable goal might seem more realistic in a brightly lit store. Lighting may matter less when a product's appeal hinges less on hope (e.g., beverages promising to quench one's thirst).

3.3 | Moral is clean

Numerous studies show that people conceptualize abstract ideas about morality metaphorically in terms of experiences with physical dirt and cleanliness (Zhong & House, 2014). Researchers propose that humans have evolved mechanisms of disgust to avoid sources of physical contamination. By means of metaphor, they apply those mechanisms to judge the morality of things that at are not harmful substances in any literal sense. That explains why they talk about *clean* tax records, *dirty* deeds, and *scrubbing* the Internet of *filth*.

How does this metaphor inform product evaluation? In one set of studies examining this question, Zhong and Liljenquist (2006) found that people who imagined themselves acting immorally reported greater preferences for cleansing products such as soap bars and shampoo as opposed to non-cleaning products such as batteries. Lee and Schwarz (2010a) found that this *morality is clean* association is modality specific. After transgressing with their mouth by conveying a lie on someone's voice mail, participants were concerned with the physical cleanliness of their mouth. As a result, they preferred mouthwash over hand sanitizer as a gift for participating. Those who transgressed with their hands by typing a dishonest email clamored for the hand sanitizer to figuratively wash away their unethical act. Such specific, parallel responses suggest that ideas about morality are closely mapped onto embodied experienced with dirt and cleanliness, with measurable consequences for product evaluation.

Other research shows that this embodiment of morality is stronger in purity violations (sexually promiscuity) than harm and justice violations. Horberg, Oveis, Keltner, and Cohen (2009) induced disgust emotions or, for comparison, negative emotions such as anger. Only disgust increased participants' condemnation of purity violations, such as keeping an untidy personal space and being sexually promiscuous. Yet inducing disgust had no impact on justice violations such as requesting special treatment.

Looking more broadly, consider that cleanliness conceptions play a significant role in intergroup prejudice (Hodson & Dhont, 2015). People tend to dislike out-groups perceived as "contaminating" the in-group's symbolic systems of order—encompassing social norms, values, and morals—despite those perceived threats being unrelated to physical dirt or pollution in a literal sense. Studies show that situationally induced disgust (via exposure to foul tastes or smells, recalling disgusting experiences, watching a gross film) and dispositional proneness to disgust predict prejudice toward a wide variety of social groups including gays and lesbians, immigrants, atheists, foreign ethnic groups, low-status groups, and overweight individuals (e.g., Dasgupta, DeSteno, Williams, & Hunsinger, 2009; Hodson et al., 2013; Inbar, Pizarro, Knobe, & Bloom, 2009; Ritter & Preston, 2011).

An interesting (though admittedly speculative) implication is that in contexts where consumers are expected to interact with, or simply be in proximity to, members of perceived out-groups (e.g., sidewalk sales, farmers' market, movie theaters), the mere presence of dirty stimuli

(e.g., food stains or foul odors) may amplify their negative reactions to those "contaminating" out-groups—again, even if the out-group is not literally dirty. These negative feelings may spill over to create a negative impression of the products at hand, making consumers less willing to open their wallet or purse.

3.4 | Powerful is up

Several studies show that perceptions of morality, status, and even divinity are linked to vertical position in a manner consistent with conventional linguistic metaphors linking powerful to *up* ("She's a *rising star* in Anthropology") and powerless to *down* ("They're at the *bottom* of the hierarchy"; Meier, Scholer, & Fincher-Kiefer, 2014). In an early demonstration, participants judged groups' social power more accurately when powerful groups were presented at the top of a computer screen and powerless groups were shown at the bottom of the screen (Schubert, 2005).

This metaphor may inform product evaluation in several ways. Take the case of people judging current or prospective leaders. Powerful leaders serve as prominent icons for their companies and their image and stature contribute to the companies' overall appeal and success. Prominent examples include Steve Jobs and Elon Musk. In some cases, though, leaders have not yet attained such heights of power and influence, and group leaders are still sizing them up to determine their suitability as leaders.

In these cases, claim Frimer and Sinclair (2016), visual depictions of leaders can leverage the *powerful is up* metaphor to influence attitudes. They hypothesized that leaders who focus their gaze upwards will be seen as more heroic and "leader like" than equivalent leader candidates positioned in other ways. As predicted, participants tasked with choosing a portrait of a leader to promote their social cause preferentially selected images of the leader gazing up rather than level or down. These findings can be beneficial to companies who want to promote their products using images of their leaders.

The *powerful is up* metaphor can also be leveraged to improve the impact of a product's placement in the retail space, whether it involves elevating the product on a shelf or podium or displaying it below consumers' line of sight. Retailers may benefit by elevating products intended to convey power and placing in lower positions those products associated with other valued attributes (e.g., belongingness). Similarly, if the aim is to make consumers feel empowered themselves to control an otherwise intimidating product (e.g., a complicated new tech gadget), placing those products in a low position may project their compliance.

3.5 | Important is heavy

The metaphoric expression of importance as weight permeates daily discourse. For example, important issues are often referred to as "heavy," an influential individual's opinions may "hold more weight" than a less influential person, some issues "weigh more" on our minds than others, and people "weigh" the value of different opinions before making a decision.

Consistent with everyday vernacular, several studies indicate that holding a heavy weight can increase the perceived importance of an abstract social stimulus. For example, when college students were given a survey on issues at their university, those who completed the survey on a heavy clipboard (about 2 lbs.) judged the issues as more important than did students who handled a light clipboard (about 1.5 lbs.; Jostmann, Lakens, & Schubert, 2009). Holding a heavy clipboard also increases perceptions of a job applicant's sincerity (Ackerman, Nocera, & Bargh, 2010) and the seriousness of a disease and drug side effects (Kaspar, 2013).

In the food and hospitality domain, food presented in a heavy (vs. light) container is expected to be more satiating and expensive (Piqueras-Fiszman, Harrar, Alcaide, & Spence, 2011; Piqueras-Fiszman & Spence, 2012) and perceivers who hold heavier restaurant menus compared with lighter menus rate restaurants as being more upscale and providing better service quality (Magnini & Kim, 2016).

In an academic setting, individuals told that a textbook contains important information rated the textbook as weighing heavier than those who are not told about the textbook's importance (Schneider, Rutjens, Jostmann, & Lakens, 2011). In another study, individuals who held a USB stick presumably containing important tax information estimated the storage device to be heavier than those who were not told about information on the USB stick and those told the USB stick contained expired tax information (Schneider, Parzuchowski, Wojciszke, Schwarz, & Koole, 2014). Marketers' intuitive understanding of this metaphor likely lies behind their recent efforts to develop plastics with extra heft (Postrel, 2003).

3.6 | Gender is hardness/softness

Gendered marketing—separate product design and marketing strategies for different genders—is increasingly common. One commonly encounters deodorants, multivitamins, energy bars, and even bread marketed separately to men and women. Other than minor differences in content, these products typically vary in terms of design and packaging. Women's products are typically made in softer colors (e.g., pink), material (e.g., silk), and shape (e.g., round), whereas men's products are designed to look dark (silver or steel color), hard, angular, or rustic/antiqued.

It is likely that marketers and product designers chose these features based on their intuitive understanding of culturally stereotyped gender differences. Researchers have looked deeper and found that people metaphorically associate genders with different tactile properties. In studies by Slepian, Weisbuch, Rule, and Ambady (2011), the tactile experience of softness (vs. hardness) reliably biased participants' gendered categorization of sex-ambiguous faces. Specifically, merely touching a soft object activated associations with *female*, leading participants to perceive more femininity in otherwise gender-neutral faces.

The implication is that ideas about gender appropriateness can be triggered by unexpected sources, such as slight variations in a product's feel. For example, if a male consumer is considering a bottle of multivitamins advertised as "formulated for men," he may be less interested if the bottle was squeezable or coated with a soft texture.

Also, he may not be consciously aware that his evaluation of the product is biased by metaphoric associations between tactile qualities and femininity/masculinity.

The association may spread even further, influencing attitudes toward superficially remote products. Many things that are implicitly coded as masculine are also encoded as *hard*. Take the popular notion of the "hard" sciences: they are rational, difficult, real, serious and, all too often, masculine. In contrast, literature, art, and other fields are "soft," connoting emotional, unreal, frivolous, and feminine. Such metaphoric clusters may influence, for example, consumers' interest in so-called "hard news"—fast-paced news coverage that gets prominent placement and covers the "real" topics like business and politics—as opposed to "soft news/media" that primarily deal with entertainment, arts, and lifestyle.

3.7 | Social proximity is warmth

When customers walk into a retail store, their first impression is often the sales associates that greet them. If they get a *warm* reception they may buy more and be more satisfied with their experience; but they'll likely be turned off by a *cold* shoulder or an *icy* stare. Behind these expressions, studies show, people represent friendly, welcoming qualities with warm temperatures and unfriendly qualities with coldness. These studies show that subtle variations in ambient temperature produce metaphor-consistent effects on perceptions of others' friendliness and cooperativeness. Warmer temperatures lead people to perceive others as being more socially close and intimate, whereas cold temperatures lead to perceptions of distance and rejection (IJzerman & Semin, 2009). Several studies employing a range of empirical paradigms show that constructs linked to sociality (e.g., trust, similarity, perceived emotional support) and warmth sensations and preferences mutually influence each other in metaphor-consistent ways (e.g., Chen, Poon, & DeWall, 2015; Inagaki & Eisenberger, 2013; Vess, 2012).

In light of these findings, we might expect retail stores with warmer temperatures to induce perceptions of interpersonal connectedness and friendliness in customers, thereby promoting sales. That said, retailers might strategically employ coldness sensations. For example, they may wish to portray a luxury product as projecting social distance and limited accessibility (e.g., Louis Vuitton). In this case, colder room temperatures might work better.

In addition to temperature affecting feelings of sociality, social interactions affect preferences for hot versus cold products. Experiences of loneliness and social rejection are closely associated with cold sensations (Zhong & Leonardelli, 2008). In fact, people who have just been socially rejected report feeling colder than those who are not rejected (IJzerman et al., 2012). To compensate for those unpleasant feelings of coldness, they often seek warm drinks and food (Troisi & Gabriel, 2011). Thus, if marketers have reason to believe that customers feel socially alienated, lonely, or otherwise "left in the cold," they may strategically offer warm food and other products, even when cooler products would be otherwise preferred (e.g., on a hot day).

Taken together, the studies reviewed so far reveal that, as people navigate consumer contexts and various products, they don't always see them through the unobscured lens of total economic rationality. Rather, various sources of bodily sensation, as well as sensory-related language and imagery, activate metaphoric associations that shape attitudes and choices in subtle yet powerful ways.

4 | BUT *WHEN* DOES METAPHOR SHAPE PRODUCT EVALUATION?

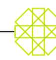
A new question arises: *When* does metaphor matter? The foregoing discussion may give the impression that metaphors are so entrenched in cognition that they operate automatically and inevitably. Yet it is unlikely that metaphoric thinking manifests in the same fashion across individuals and situations. Fortunately, our guiding theoretical framework points to moderating factors. This section considers five factors studied in consumer contexts.

4.1 | Source resonance

Early demonstrations of metaphoric framing effects showed that messages comparing abstract topics to affectively charged sources changed target attitudes in source-consistent directions (Ottati, Renstrom, & Price, 2014). Going beyond these direct effects, researchers reasoned that if metaphor creates a systematic conceptual mapping, then it should transfer *personalized* source knowledge (Ottati & Renstrom, 2010). This yields a *source resonance* hypothesis: Exposure to a metaphoric message will affect target processing differently depending on recipients' preexisting conceptions of the source. If, alternatively, metaphor transfers stereotyped representations of generic source concepts (i.e., stripped of personal connotations), then metaphoric messages should not interact with individual differences in source conceptions.

4.1.1 | An academic requirement is a sporting event

Building on this reasoning, Ottati, Rhoads, and Graesser (1999) reasoned that when people encounter a metaphoric framing, their interest in the source determines how much effort they put into thinking about the target. In one study, college students read strong or weak arguments that they be required to complete a new, difficult hurdle before being allowed to graduate. In one condition, the message was interspersed with sports-metaphoric statements (e.g., "If you want to *play ball* with the best…"); in a comparison condition, these statements were replaced with literal paraphrases (e.g., "If you want to *work* with the best…"). Among participants who knew and cared about sports, sport-metaphoric statements led to more positive attitudes toward the new requirement when the arguments were strong, but not when they were weak. Compared to those who cared less about sports, they seem to have devoted more mental energy to evaluating the quality of the persuasive arguments before making a decision. Sports apathists were less attentive, so their evaluations of the requirement were less affected by argument strength.



4.1.2 | Sun exposure is enemy confrontation

People vary not only in their interest in the source but also in the strength of the emotions they associated with it. Landau, Arndt, and Cameron (2018) examined whether this individual variability moderates the effect of metaphoric framing exposure. They focused on the context of skin cancer communication to examine how people react to messages urging them to purchase and apply sunscreen to reduce their risk of skin cancer. Prior work had shown that a major obstacle to persuasion in this context is that, for many people, the anticipated threat of skin cancer seems abstract—invisible, indeterminate, and remote from the here and now (Hay, Buckley, & Ostroff, 2005). Consequently, a message portraying that risk in abstract terms may fail to increase fear-related emotions, such as worry, that motivate preventive action. In contrast, a message that frames the risk metaphorically in terms of a concrete hazard may be effective under certain conditions at eliciting an energizing level of worry. Given that the effects of health risk messages on sun protection efforts are partly mediated by worry (Kiviniemi & Ellis, 2014), a metaphoric message has the potential to strengthen intentions to slather on sunscreen. To examine this possibility, Landau et al. randomly assigned one group of participants to read a message framing the sun metaphorically as an anthropomorphized enemy determined to strike them with harmful ultraviolet (UV) rays. Participants in the comparison condition read a parallel message framing sun exposure as a major health risk.

The researchers also asked an additional question: For whom will this enemy metaphor be motivating, and for whom will it be ineffective or even counterproductive? The aforementioned *source resonance* hypothesis suggests an answer: For recipients prone to fear enemies, a message framing the sun as an enemy will be more effective, or at least equally effective, as a literal message. For recipients relatively unafraid of enemy confrontation, however, the enemy-metaphoric message will not increase worry and prevention intentions, and may even decrease them. In line with predictions, participants high in enemy fear responded to the enemy-metaphoric (vs. literal) message with higher skin cancer worry, which mediated their intentions to acquire sunscreen and their monetary valuing of sunscreen (assessed with a willingness-to-pay measure). But for participants with a low fear of enemy confrontation, the same metaphoric message led to *lower* worry about skin cancer, and through such trivialization, lower intentions to purchase sunscreen.

The point is that the metaphoric message prompted participants to transfer their *personal* experiences with the source to assess the severity of the target health risk and the urgency of their response. Because some recipients didn't find that source particularly threatening, metaphor exposure led them to transfer minimal fear to the domain of skin cancer and, as a result, they were less interested in buying sunscreen.

4.1.3 | The body is a family

Research in health psychology shows that health messages are more likely to motivate recipients to make lifestyle changes when the messages are framed in ways that align with recipients' cultural values (Betsch et al., 2016). One communication strategy that might achieve this goal is to provide a metaphor that frames otherwise abstract health-related concepts in terms of ideas that are familiar to and valued by the targeted cultural group. It is possible that such a metaphor prompts recipients to apply those valued ideas to make sense of superficially unrelated health risks and prevention practices. In this way, the metaphor may help those individuals to gain a more compelling understanding of how the health risk threatens their well-being and the importance of taking active steps to reduce it.

Spina, Arndt, Landau, and Cameron (in press) examined this possibility in the context of Latino culture and its investment in the value of *familism*, which prescribes how the extended family can take precedence over individual interests. They tested whether a health message using a cancer-screening metaphor targeting family-oriented values would engage individual differences in those values to predict intentions to sign up for a Papanicolaou (Pap) smear. Latina women completed an online survey that included measures of familism. The women were then presented with a message about Pap smears. Depending on randomly assigned condition, the message either used a metaphor to compare the human body to a family (in which body parts figuratively support one another) or described the body without a provided metaphor. As predicted, there was an interaction between message type and recipients' dispositional valuing of familism. When the message compared the body to a family, the degree to which participants valued familism positively predicted their interest in getting a Pap smear. In contrast, when the message was literal—that is, when the same basic health information was presented without a provided metaphor—individual differences in familism did not predict Pap smear intentions. Looked at differently, the interaction revealed that among Latina women high (but not low) in familism endorsement, a metaphoric message comparing the body to a family increased Pap smear intentions compared to a literal message.

These findings imply that marketers who choose to feature a metaphor in a consumer communication (e.g., a public health campaign, product marketing) should expect recipients to transfer personalized knowledge of that metaphor's source to understand and relate to the target abstraction and associated products. This process is what we would expect based on Conceptual Metaphor Theory's claim that activated metaphors transfer schematic knowledge from one domain to another. It is by virtue of this systematic transfer of knowledge that metaphors can shape product evaluation in ways that are distinct from other cognitive mechanisms studied in the mainstream consumer literature, such as peripheral cues.

4.2 | Uncertainty about the target

Conceptual Metaphor Theory claims that metaphor use serves an epistemic function, helping the person to represent and reason about an otherwise vague or unfamiliar abstraction using knowledge of something concrete and easily grasped. People's subjective comprehension is reduced when they perceive a target to be unfamiliar, abstract, complex, unstable, or obscure. The resulting desire

to restore a sense of understanding will increase engagement with metaphors likening that target to sources perceived as familiar concrete, simple, consistent, or discernable. If, in contrast, people feel they have a satisfactory grasp of the target in its own terms, they will be less likely to adopt available metaphors to understand and relate to that target. Several studies support these hypotheses in consumer contexts.

4.2.1 | Valuable is up

Keefer, Landau, Sullivan, and Rothschild (2014) tested whether metaphors linking positive (negative) valence to high (low) vertical position were moderated by situational variations in target uncertainty. They asked college freshmen to write about one of three topics: uncertainties about the value of their college experience, a recent bout of intense physical pain (a generally aversive topic for comparison with uncertainty), or mundane experiences with shelving books.

Student were then asked to think back to their decision to attend their current university rather than another college or university. They were handed a piece of lined paper and asked to write a few words on each line summarizing a given factor behind that decision. Students randomly assigned to the *up* condition were instructed to summarize an early decision factor on the bottom line, a subsequent factor on the next line up, and so forth, writing at the top of the page a recent factor influencing their decision. In contrast, students assigned to the *down* condition were instructed to write about early decision factors at the top of the page and recent factors at the bottom.

Next they were asked how satisfied they were with their admissions decision. As predicted, visually arranging decision factors in an upward versus downward direction influenced decision satisfaction in line with the metaphors *up is good* and *bad is down*, but only when college-relevant uncertainties were salient. As seen in Figure 4, students induced to feel uncertain about college's value (versus those primed with aversive or neutral thoughts) reported being more satisfied with their admissions decision if they visualized it as moving up over time, whereas they were less satisfied with that decision if they visualized it as moving down. As important, participants who were not made uncertain about college's value did not rely on the verticality cues to inform their attitudes. These findings suggest that (at least some) metaphors do not have an automatic or inevitable influence on product evaluation; rather, they are tools that consumers rely on especially when they find it difficult to grasp an abstract idea.

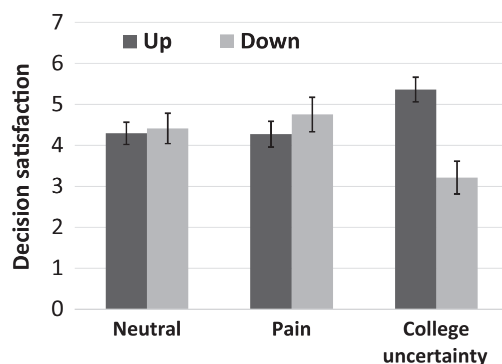


FIGURE 4 Metaphors of *up* and *down* affected satisfaction with one's university decision only when uncertainties about college were salient. (Data from Keefer, Landau, Sullivan, and Rothschild (2011); Error bars represent standard errors)

4.2.2 | Personification

Examples abound of consumer messages personifying intangible things as though they were intentional agents. A Mucinex commercial depicts chest congestion as a scheming gremlin; Mr. Clean is an embodiment of good housekeeping; a spokesperson reaches for a particular brand of engine oil and his car responds with an eager grin. Such messages are intended to encourage consumers to conceptualize target abstractions using their folk psychology—their common fund of knowledge about mental states (intentions, goals, beliefs) and how they link to action. But do such metaphoric appeals always work to change attitudes?

People are particularly prone to anthropomorphize inanimate objects, say Epley, Waytz, and Cacioppo (2007), when they desire to understand, predict, and control their environment. When people are motivated to navigate their surroundings, but cannot directly observe what's causing the behavior of some nonhuman thing, it helps to map its activity onto familiar folk psychology. Supporting evidence shows that people are more likely to impute humanlike characteristics to gadgets, machines, and consumer products portrayed as behaving unpredictably but not when the same objects are behaving predictably (Waytz, Cacioppo, & Epley, 2010).

4.2.3 | Self-coherence is object unification

Landau, Nelson, and Keefer (2015) showed business school students a (fabricated) advertisement for a new online service to help them organize their résumé in such a way as to present themselves to employers as possessing a coherent set of job-relevant attributes, skills, and experiences. The computerized advertisement featured an animated corporate logo depicting small shards coalescing into a solid shape. This logo was designed by the experimenters to prime a metaphor comparing the abstract idea of a coherent professional profile in terms of concrete objects unifying into an integral object. Prior to viewing this logo, one group of participants was randomly assigned to write about uncertainties they might have about how this new service accomplishes what it claims to do. The other group of participants wrote about uncertainties they might have about whether or not they need this service. As predicted, participants led to feel uncertain about the service itself adopted the provided metaphor. Compared to those primed with other uncertainties, they reported being more optimistic that the service could work to unify their résumé. They also reported being willing to pay more for the service. These findings suggest that the moderating role of target uncertainty is specific to the target. That is, people are more likely to assimilate the metaphoric meanings of a consumer communication when feeling uncertain about the target as opposed to when feeling uncertain about something else.

Together these studies show that metaphoric influences will be stronger when consumers desire a clear-cut, simple interpretation of the target product. However, when they instead feel as though they have a solid grasp of the target, or if they are uncertain about something else, they will be less likely to adopt an available metaphor. Hence, marketers may get more traction with metaphoric (vs. literal) messages when promoting an entity or system that is difficult to comprehend, such as those that cannot be directly observed with the senses (e.g., the stock market; eating disorders; airborne bacteria). For products that are perceptible and well understood, metaphors may be superfluous.

4.3 | Consciousness of sensory signal

We have seen that introducing a subtle sensory signal can unconsciously influence consumer judgments. Much of this work proceeds from the assumption that individuals are *not* consciously aware of the induced bodily state. But what happens when contextual cues draw people's attention to their use of bodily states as a source of information? Some insight comes from research on typical priming effects, which shows that people assimilate primed information to form judgments unless they are explicitly aware of the prime and its potential influence on their judgment. In these cases, people may adjust for the prime by processing the target stimulus in a relatively deliberate, controlled, and rational manner (Martin, 1986; Wyer & Budesheim, 1987). A similar adjustment process may moderate the effect of metaphoric influences on judgments. That is, it is possible that primed sensory signals can automatically provide metaphorically-linked information in an implicit manner, but if something in the social context draws conscious attention to those signals, conscious or explicit processing may attenuate or eliminate the use of the body as information.

4.3.1 | Important is heavy

Zestcott, Stone, and Landau (2017) tested this possibility in the context of examining the effect of weight sensations on judgments of the importance of abstract stimuli (e.g., social issues) that are not heavy or light in a literal sense (e.g., Jostmann et al., 2009). They reasoned that participants holding a very heavy clipboard would think to themselves, "Wow, this is a heavy clipboard!" They hypothesized that consciously processing the clipboard's heft would prevent that sensation from serving as input into their judgment of the target topic's importance. As a result, their importance rating would reflect the neutral or low importance that the target issue typically brings to mind.

Supporting this hypothesis, two studies showed that participants rated a topic as more important when holding a moderately heavy (vs. light) clipboard. However, when the clipboard was very heavy, participants rated the target topic as less important compared with when the clipboard was moderately heavy. In a follow-up study, holding a moderately heavy (vs. light) clipboard increased perceived importance, but this effect was eliminated by explicitly drawing participants' attention to the clipboard's weight. Specifically, a weighty clipboard had no effect if the experimenter said "just to let you know—some people have found the weight of the clipboard to feel heavy." Participants ignored what they were "feeling" and instead focused their attention on the attributes of the judgment task. They became, in other words, more literal in their product evaluation.

These findings point to consciousness of a bodily state as one factor moderating when that state serves as the input to metaphorically related judgments versus when a bodily state is "just" a bodily state. If marketers want consumers to use their body as a source of information—more precisely, to assimilate products' sensory signals into their judgments of metaphorically related abstractions—they should not be so overt as to call consumers' attention to those bodily states.

4.4 | Metaphoric fit

Many consumer communications refer to a problem that consumers might have (e.g., indigestion; vulnerability to identity theft) and then promote a particular solution in the form of a consumable product or service. In some of these cases, both the problem and the recommended solution are abstract or complex. Consumers without special training or expertise may not intuitively grasp the nature of the problem or how the recommended solution is claimed to work. In such cases, consumer communications may employ metaphors to characterize both the problem and the solution. This possibility points to a final moderating factor discussed here: the interaction between metaphoric versus literal framings of problem and solution.

From the perspective of Conceptual Metaphor Theory, when people conceptualize a target problem metaphorically in terms of a source problem, they transfer source knowledge in order to reason about how to address that problem, even though the two problem scenarios are superficially unrelated and may require different approaches. Based on this theorizing we can derive a *metaphoric fit* hypothesis: When a message frames a target problem metaphorically in terms of a concrete problem, it will be more persuasive when it also frames the proposed solution metaphorically as addressing that concrete problem (vs. literally or using another metaphor). Relevant studies will help to illustrate.

4.4.1 | Depression is down

Keefer et al. (2014) manipulated the framing of both depression (the problem) and an advertised anti-depressant medication (the proposed solution). Participants were randomly assigned to read a brief description of depression framing it either metaphorically as a problem of being down (e.g., "feeling *low*") or in equivalent literal terms (e.g., "feeling *bad*"). In a separate manipulation, the advertised anti-depressant medication was framed in one of three ways: metaphorically as having an elevating effect (e.g., "*lift* your mood"); metaphorically as having an illuminating effect ("*brighten* your mood"); or literally as a potent psychotropic ("*improve* your mood"). As predicted, participants presented with matched metaphoric framings—again, those portraying depression as being down and the medication as elevating—reported being more optimistic about the efficacy of that medication compared with participants in all the comparison conditions (i.e., those who received mismatched metaphoric framings or mismatch metaphoric/literal

framings). Objectively speaking, depression is an abstract cognitive-affective condition, not a drop in vertical position, meaning that a treatment's associations with upward movement have no bearing on its psychotropic efficacy. Nevertheless, if people are led to conceptualize depression by analogy to upward and downward movement, they may rely on those concrete concepts to evaluate a treatment's efficacy. If depression is a problem of being down, low, or sinking, then a medication framed in plain, literal terms seems ill-suited to counter that risk.

4.4.2 | Cancer is war

Hauser and Schwarz (2015) demonstrated the moderating role of metaphoric fit in the context of cancer prevention practices. They reasoned that popular military metaphors for cancer imply a strategic approach to cancer treatment that is primarily aggressive and not restrained. Accordingly, participants who read a military-metaphoric (versus literal) framing of cancer were less motivated to engage in self-limiting behaviors (e.g., dieting) that reduce their cancer risk. When viewed through the lens of military strategy, certain behaviors seem poorly suited to fight the "war on cancer," even though these behaviors may be beneficial. But this effect held only when the treatments were framed without a metaphor. "Restricting one's diet" in and of itself may seem like a rather ineffective weapon for success on the battlefield, but when told that this technique was *apt for fighting enemies*, participants viewed it as a useful and desirable treatment.

The upshot: The impact of providing metaphors for abstract problems will be constrained by the framing of products purported to solve those problems. To mobilize interest, a message framing an abstract problem metaphorically as a concrete problem may be less effective, and even counterproductive, if the recommended product is not itself framed in matching metaphoric terms as addressing that concrete problem—despite the framings being technically irrelevant to judging the target product's value.

Summing up this section, the picture emerging from research is clear: Experiencing a bodily cue, or encountering a metaphor-laced communication, does not inevitably result in metaphor-consistent effects on target processing. Rather, these influences depend on several factors of the individual and the immediate social context.

5 | CONSUMPTION ATTITUDES

The various lines of research reviewed thus far converge on the claim that consumers regularly use metaphors to evaluate products. The guiding idea was that forming an impression of a product can be difficult because the characteristics that consumers are often interested in—such as *power*, *importance*, and *femininity*—are not directly observable. Metaphors support their understanding by representing those characteristics in terms of concepts that are perceptible and well-understood. In this section we switch focus to consider whether and how metaphors influence the way people feel about their own consumption. We zoom in on such everyday conundrums as: Should I buy now or wait? Continue negotiating or settle? Get what I like or what others approve of? Spend money to help others?

Even a cursory observation of how people talk about their own consumption reveals a raft of metaphors. Some purchases are *outside* a consumer's budget, but if she is *flexible* she may, after *going back and forth*, *shift things around*, *stretch* her dollar, and *take the plunge*. She may even talk about her belongings using the vocabulary of interpersonal attachments: "I'm *breaking up* with my Fitbit." As we've seen, however, the ubiquity of linguistic metaphors tells us only so much about the underlying cognitive processes. The lines of research reviewed next go deeper to probe metaphor's cognitive significance.

5.1 | Post-choice regret

After a purchase, consumers often ruminate about whether they made the right choice—a feeling variously labeled buyer's remorse, buyer's regret, and post-purchase consumer regret (Lee & Cotte, 2009). It is likely that this negative feeling of regret is increasingly common as Internet-based shopping outlets presents consumers with more closely matched products and more buying options than were available in traditional retail contexts.

We can define this feeling as a form of cognitive dissonance. Once the consumer makes a choice between alternatives, the unattractive aspects of the chosen alternative, and the appealing aspects of the unchosen alternatives, continue to demand attention. The cognition "I'm not a person who makes bad choices" is dissonant with the cognition "Perhaps I chose wrong." Lingering on this unpleasant dissonance may put the brakes on further consumption. Imagine that Harold struggles with the decision whether or not to join an online dating site. He's heard it's a good way to meet people, but he cannot get over the time and money he wasted on a similar site a couple years ago. Harold may want to "wipe the slate clean," to metaphorically remove residual concerns about previous choices and "start fresh."

5.1.1 | Post-decisional dissonance is dirt

A little soap might do the trick. Using the free choice paradigm developed in dissonance research (e.g., Cooper, 2007), Lee and Schwarz (2010b) asked participants to rank 10 CDs in order of preference, choose one of two closely-ranked CDs to take home, and later on re-rank the CDs. Replicating the classic finding, participants justified their choice by changing their perception of the choice alternatives: They ranked the chosen CD higher in the second ranking compared to the first, whereas they ranked the rejected CD lower (the left two bars in Figure 5). By exaggerating the alternatives' pros and cons, they could put to rest any lingering dissonance over their choice.

But here is the twist: After choosing a CD and prior to making a second ranking, participants were asked to help with an unrelated product test. Half evaluated a bottle of hand soap by washing their hands; the others examined the bottle but didn't wash up. As expected, the classic "spreading of alternatives" effect was eliminated when participants washed their hands. Having metaphorically washed

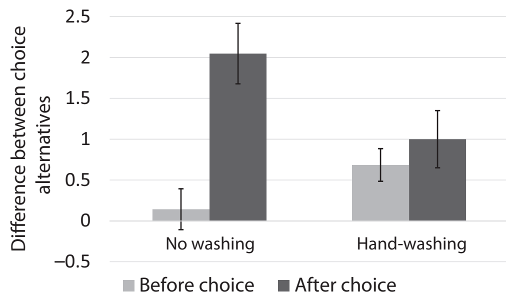


FIGURE 5 Post-decisional dissonance after hand washing or no hand washing (data from Lee & Schwarz, 2010b, Study 1). Higher values indicate higher preferences for the chosen alternative—that is, justifying prior choices. Error bars represent standard errors

away their post-decisional dissonance, they no longer felt compelled to justify their choice.

5.2 | Authentic choices

Consumers may be preoccupied with consuming in ways that align with or express their "true" or authentic self—a conception of who they think they truly are that is not conditioned by or dependent upon social approval. Despite its implications for consumption, the true self is one of the less easily definable aspects of the self. How do people wrap their head around it?

5.2.1 | The true self is an inner core

One answer comes from analyses of everyday discourse showing that people across cultures regularly talk about the true self metaphorically as though it were a core-like physical object (e.g., "I *found* who I am *deep down*"; Lakoff & Johnson, 1999). Correspondingly, people conventionally talk about the true self as though it were housed in an external casing that represents the person one normally presents to society, and which is not always consistent with the true self (e.g., "You only know me *on the surface*"). Speakers of diverse languages, from English to Japanese, extend this metaphor to describe the enhanced expression of their intrinsic self in terms of their inner core expanding or emerging from its container. For example, students in the U.S. and Switzerland describe self-development, but not other self-aspects, with expressions such as "I am *growing* inside" and "My true self is really *coming out*" (Lakoff & Johnson, 1999; Matsuki, 1995; Moser, 2007).

Of course, these expressions are senseless when interpreted literally. There is no "core" lodged in people's insides that bursts forth to express itself in authentic judgment and actions. Yet these expressions are more than mere figures of speech. They offer a window into how people conceptualize the enhanced influence of the true self. Studies show that priming the expansion of an integral physical entity facilitates authentic choices—those that align with the true self as opposed to other people's standards for what to like.

In one study, Landau et al. (2011) asked participants to complete a neutral word task on the computer. In between trials, a sequence of different-sized squares flashed on the screen for about 1-s. In the *expansion* condition, the squares progressed from small to large; in the *stasis* condition, the large square reappeared; in the *fragmentation* condition the squares expanded but fragmented into an array of progressively smaller pieces (the *inner core* metaphor conventionally refers to an *integral* entity, not one that "falls apart").

In a purportedly unrelated task, participants evaluated some abstract paintings. Using a subtle ruse, the researchers arranged it so that participants could see the evaluations ostensibly made by former participants. It was clear which paintings their peers liked and which they despised. Would participants give in to popular opinion? Participants exposed to an expanding entity felt more comfortable expressing their genuine preferences rather than conform. They were more likely than participants who viewed a static or fragmenting entity to report their genuine likes and dislikes of the paintings, even when that meant going against the majority opinion. The metaphoric meaning of the expanding "core" led them to feel less concerned with others' approval, freeing them to express their authentic preferences.

5.3 | Negotiation

In classical models of rational choice, negotiation is based on the expected utility of an outcome. Yet research increasingly shows that negotiation is heavily influenced by "extra" factors related to perceptions of the negotiation task and the surrounding social context. These factors include concerns with fairness and altruism, and the anticipated emotional reactions to potential future outcomes, among others (e.g., Thompson, 1990).

Add metaphor use to this list of "extra" factors. Note that the language of negotiation brims with metaphors: *go back and forth* between options; choose the correct *path*; *step back* and get the *bigger picture*; *get out* of a *narrow* deal; *seize* an opportunity or seek a *no-strings-attached* option that won't *tie you down*. If people use such metaphors to think, and not "just" to talk, then experimentally altering source representations should cue metaphorically associated thoughts, goals, and feelings regarding the negotiation context, which in turn should influence behavior. Studies are beginning to show such effects in consumer domains.

5.3.1 | Assertiveness is hardness

Imagine that a financial consultant offers you a deal. What happens if she treats you as a *softy*? You might correct that perception by taking a *hard* line in your negotiation. It might help to simply switch your chair. Participants in one study (Ackerman et al., 2010) imagined shopping for a new car, making an offer to the dealer, being rejected, and having to make a second offer. If they had been randomly assigned to sit in a hard chair, they receded less from the first offer to the second offer. If they were instead sitting in a soft, squishy chair, they buckled under pressure and dialed back their negotiation. Even subtle, incidental bodily experiences shaped their negotiation behavior through the mediation of conceptual metaphor.

5.4 | Prosocial behavior

A recent marketing trend is to associate the purchase of a product with philanthropic rewards. To mention just a few recent examples: for every pair of Tom's Shoes you buy, the company donates a pair to a child in need; for every bottle of Ethos water you buy, Starbucks contributes to clean-water programs; for every purchase of a pink bucket of fried chicken, KFC will donate 50 cents to breast cancer research. The common message is that spending (more) money affords you not only the product, but also the confidence that you're making the world a better place. Might metaphors be used to augment these prosocial purchases?

5.4.1 | Moral is clean

Building on the aforementioned evidence that morality conceptions are metaphorically grounded in bodily experiences of dirt and cleanliness, we can hypothesize that priming a sense of cleanliness will induce people to act in a morally "pure" manner. To test this possibility, Liljenquist, Zhong, and Galinsky (2010) asked participants to spend a few moments completing filler surveys in one of two rooms. One was sprayed with a citrus scent signaling cleanliness, the other non-scented. Afterward they were asked whether they would be willing to donate to charity. Participants in the clean-scented room were much more likely to donate than those in the non-scented room. Presumably the scent activated a metaphoric mapping between cleanliness and morality, thereby leading participants to behave more charitably.

Related studies show that, because of the close metaphoric association between morality and cleanliness, situationally induced disgust results in more reciprocal fairness in economic interactions (Moretti & di Pellegrino, 2010). This suggests that feelings of disgust—the emotional correlate of physical dirtiness evolved to prevent bodily contamination—shapes moral behavior and thus disinclines people to make lucrative but "dirty" deals.

5.5 | Willpower

Willpower and temptation avoidance are strong determinants of consumer behavior. What's at stake is how much people can or even want to overcome the many temptations, distractions, and obstacles that could impede pursuit of their long-term goals. Sometimes marketers have a vested interest in promoting consumer's willpower, such as encouraging them to pick low-calorie water drinks over the short-term reward of intensely sweet soda. In other cases, marketers want to create the opposite effect, getting consumers to succumb to their desires and impulses: "Go ahead, you deserve it."

5.5.1 | Willpower is a muscle

In this light, consider the influential claim that willpower is like a muscle (Muraven, Tice, & Baumeister, 1998). We have a certain amount of ego strength that allows us to regulate and control our behavior. But just as our quadriceps ache after we've run five miles, our ego strength becomes depleted by extended bouts of self-control. This mental fatigue, or ego depletion, can make it harder to continue to regulate our behavior, even when the two types of tasks are superficially unrelated (e.g., suppressing emotions and squeezing a handgrip). This metaphor comparing willpower to muscle control lies behind such expressions as "You're *pushing yourself* too hard"; "*Let go* of this goal/*let herself go*"; letting something *drop*, *slip through our fingers*, or get *out of hand* (Lakoff & Johnson, 1999).

Examining this metaphor's impact on consumer outcomes, Hung and Labroo (2011) hypothesized that if people understand—and not just talk about—willpower as muscle control, then exerting muscle control (short of taxation) should prime willpower by means of this metaphoric association. Results showed, as predicted, that participants asked to temporarily firm their muscles were more likely than those asked to relax their muscles to display self-control in a snack choice context. One practical implication of these findings is that marketers seeking to convince consumers to exercise willpower are advised to engage consumers to exercise their muscles (again, without straining them) prior to receiving a persuasive appeal. Marketers seeking the opposite effect—to exploit consumers' impulses—might target consumers when in a state of muscular relaxation.

6 | TOWARD A METAPHOR-ENRICHED CONSUMER PSYCHOLOGY

The theoretical goal of this article is to deepen understanding of how metaphor structures thinking and thus how it can affect consumer-related outcomes. The complementary practical goal is to advance the study of consumer communication by modeling factors that mediate and moderate the productivity of metaphoric messages. To those ends, we reviewed studies that collectively provide strong experimental evidence that activated metaphors impact a range of consumer outcomes. Our ultimate goal is to chart the course for a fruitful exchange between consumer psychology and experimental studies of conceptual metaphor in social life. To this end, we mention a few ways of broadening the theoretical and empirical scope.

6.1 | More metaphors

Several specific metaphors not mentioned in this article have received experimental attention in social psychology, including *anger is heat* (Wilkowski, Meier, Robinson, Carter, & Feltman, 2009), *agreeable is sweet* (Meier, Moeller, Riemer-Peltz, & Robinson, 2012), and *out-group members are animals* (Maass, Suitner, & Arcuri, 2014). An even larger body of qualitative research, including richly detailed, cross-disciplinary studies of language and culture, points to numerous metaphors that structure how individuals and groups think, feel, and interact (e.g., *time is money*; *system failure is machine malfunction*; *the federal budget is a household budget*; *war is a game*; *ideas are food*; e.g., Kövecses, 2005, 2010; Lakoff & Johnson, 1999). Most of these researches have yet to explicitly model consumer outcomes, focusing instead on other corners of social life. Hence, a straightforward

and profitable next step would be to replicate and extend this work in ways that have relevance for consumer psychology and marketing.

Another future direction is to model metaphor's interplay with other mechanisms. Consumer attitudes and behavior are likely the product of many cognitive and affective processes operating in combination. Researchers should step back to consider how these various processes inform one another to shape consumer behavior as it occurs in real time.

6.2 | Explicit metaphoric appeals

The studies reviewed in this article tend to examine the impact of subtly activating metaphors, often without participants' conscious awareness. Yet even a quick glance at the landscape of consumer communications reveals that persuasive appeals frequently use explicit metaphoric comparisons between one domain and a superficially dissimilar domain.

To illustrate, when the Boy Scouts of America came under public scrutiny for prohibiting homosexual boys from membership in its Scouting program, one concerned parent defended the policy, saying, "I really don't like someone coming in and trying to change the core values that have been in place. You wouldn't want someone to *come into your house and rearrange your house*; this is the way I want it" (Hodge, 2013; italics added). This persuasive argument likens a complex stew of ambiguous ideas—including gay rights and the American value of equal opportunity for all—to a conventional etiquette norm for private homes that bears no relation to the target.

What happens if recipients assimilate this metaphor into their reasoning? For many recipients, the referenced etiquette norm is self-evidently sound: A respectful person obviously does not traipse into a stranger's home and tell them how to redecorate. The metaphoric appeal may prompt them to transfer this confident reasoning from one scenario to another. In this way, the message supports the inference that it is grossly inappropriate for someone to "come in" to an outside organization and tell its members how to run it. This metaphoric inference may feel just as self-evident as their knowledge about how a home operates.

This example illustrates what could be a highly persuasive form of metaphor use in consumer contexts. Explicit metaphoric appeals may prompt recipients to borrow the well-known logic of a source to give concrete form to a complicated consumer-relevant idea or product. As a result, recipients may be exceedingly confident that their attitudes toward that issue or product are correct (Tormala & Rucker, 2018).

6.3 | Design

The theory and research discussed thus far deals broadly with consumption—the features that make products attractive (or not) and the bases for everyday consumer choices. It is also important to look beyond the point of initial purchase to consider how people use a product. Marketers know that, at least for some kinds of products, promoting an enjoyable experience is as important as motivating the initial purchase. The former not only predicts repeat purchases and brand loyalty, but also predicts positive word-of-mouth endorsements to other potential consumers. More broadly, ensuring a positive experience is a step toward promoting the public's overall productivity, happiness, and subjective well-being (Mogilner, Hershfield, & Aaker, 2018).

Marketers seeking to promote positive user experiences are advised to consider that metaphors serve as a medium through which consumers engage with products. Put differently, users are in some cases relying on metaphors to discern what functions a product affords, and how they might take the best advantage of it. A good metaphor will optimize use and enjoyment of the product, while designing products and services without considering metaphor's cognitive significance comes at the cost of frustrating consumers and even causing harm (and perhaps lawsuits). Here, as in earlier sections, we are quick to acknowledge that many important aspects of design have nothing to do with metaphor. For example, the warning lights on a car dashboard glow red because marketers know that individuals socialized in Western cultures learn that the color red is associated with stopping and danger. In this case, the color red is a sign, not a metaphor, because it is unlikely that people use knowledge about red as a mental template to understand abstract ideas related to danger or urgency.

Still, many design elements do rest on metaphors, for better and for worse. Perhaps the clearest example is the rich set of metaphors designed into the user interfaces of personal computers. Most users would have a difficult time navigating the bare-bones machine language of their computer. But they don't need to, because software engineers have afforded them an intuitive vocabulary that borrows from a range of concrete, routine, and intuitive interactions with the physical world: folders, walls, clouds, nets, rooms, pasting, and so on.

External devices for computers are also designed around metaphors. Consider the Logitech mouse in Figure 6. On the side are two buttons allowing Internet browsers to return to a website viewed prior to or after the currently active website. If that sounds like a cumbersome description, it is because most of us are accustomed to describing this function in terms of "going back" and "going forward,"

FIGURE 6 Logitech mouse with buttons operationalizing the spatial metaphors of "going back" and "going forward" between websites. [Color figure can be viewed at wileyonlinelibrary.com]

respectively. That is a spatial metaphor (there is no literal backward or forward movement) and it is reflected in the mouse's button configuration. The same metaphor presumably informed the design of the virtual buttons in a web browser, a calendar app, or a flow chart program.

Acknowledging metaphor's role in design could help marketers seeking to expand by presenting a product to members of different cultures. Cross-cultural analyses show that two cultural or subcultural groups may share a conceptual metaphor at the generic level but adopt variants grounded in different representations of the source at a specific level (Kövecses, 2005). For example, although the metaphoric mapping of time onto spatial movement is culturally widespread, cultures vary in how, specifically, people map these domains. In contemporary American and European cultures, the future is forward and the past is back, as we just saw. But in many East Asian languages, an earlier time is sometimes described as *up* and a later time as *down*. In Mandarin Chinese, for instance, last month is *shàn-yuè* (up-month) and next month is *xià-yuè* (down-month) (Yu, 1998). Also, readers of Arabic and Hebrew—who read from right to left—may be more comfortable thinking about "back" as "moving" from right to left. The point is that products should be designed with a sensitivity to the local metaphors that organize cognition.

Another case study in metaphor-enriched design is creativity. Traditionally it was assumed that creativity is an inherent capacity of the person that remains constant from one situation or life stage to the next (McCrae & Costa, 1999). You're either blessed with it or you're not. But now we know that different situational factors help and hurt people's ability to explore unfamiliar ideas, discover hidden connections, or come up with innovative solutions to old problems. By studying metaphor we get a fresh look at how situations can promote creative insight.

For example, creativity is often talked about and visually depicted as *fluid* movement, like rolling water and flexible fabric; if we lack creativity, our thinking is *stiff*, *rigid*, and *dry*. Studies show that activating these bodily concepts stimulates creative thinking. Participants who traced a fluid shape (in an ostensible assessment of hand-eye coordination) were more creative than participants who traced an angular shape (Slepian & Ambady, 2012). Specifically, after simply moving their hand fluidly, participants had an easier time seeing relationships between things that are only remotely associated, and they generated more—and more original—ideas for how to use a common object. Priming fluid movement did not influence performance on non-creative problem solving tasks (e.g., difficult math problems), but—in line with the conventional metaphor—specifically bolstered performance on tasks that required creative thought.

Another common metaphor likens creativity to illumination. We say that someone has a *bright* idea or a *spark* of insight; that a novel solution to an old problem can *emerge from the shadows* and finally *dawn* on someone. Accordingly, studies show that ambient lighting has metaphor-consistent effects on creativity. Simply working near an illuminated light bulb (compared to diffuse overhead light) helped people to come up with creative solutions to problems that "shed light upon" remote associations (Slepian, Weisbuch, Rutchick, Newman, & Ambady, 2010).

The point is that the study of metaphor's role in thought, feeling, and action is poised to enrich how marketers and product designers think about the way people interact with products and consumer contexts. More work on this topic may provide insights for improving people's workplace productivity, consumer loyalty, and overall psychological well-being.

6.4 | Metaphors can backfire

We've seen that metaphor has the potential to enhance the motivational capacity of consumer communications. Marketers' intuitions of this possibility likely lie behind their frequent use of metaphors to represent abstract concepts. But might there be downsides to the approach, and if so, what factors influence when those downsides occur?

We've already seen a couple of examples. Studies testing the *source resonance* hypothesis suggests that exposure to metaphoric messages can have the intended effects on target-relevant attitudes and intentions provided that recipients possess the expected knowledge, interest, and emotional resonance of the metaphor's source. But among recipients who do not know or care about that particular source, the same message can be ineffective. Furthermore, tests of the *metaphoric fit* hypothesis suggest that a message-cued metaphor prompts recipients to transfer problem-solving heuristics from the source to the target—even when they are, strictly speaking, unrelated. Thus, when a message presents a mismatch between metaphors for a problem and the recommended solution—for example: framing skin cancer risk metaphorically as an enemy but sunscreen application literally as a beneficial prevention practice—metaphor may decrease consumers' engagement compared to a message containing no metaphors at all.

6.4.1 | Same source, different meanings

Another potential pitfall of metaphor is that the same sensory signal can prompt different, even diverging metaphoric associations. For example, earlier we mentioned studies showing that heat is closely linked to friendliness ("I got a *warm* reception at NYU"; Williams & Bargh, 2008). Yet other studies show that people use hot temperature sensations to metaphorically conceive negative ideas like intensifying conflict (e.g., "This debate is really *heating up*!" Kövecses, 2005) and danger ("Go upstate until the *heat* blows over"; Wilkowski et al., 2009). How, then, should metaphorically framed messages refer to heat? There is no straightforward answer.

Polysemous metaphors can also complicate product design. Imagine that designers engineer a steering wheel that vibrates when another car is dangerously close. Vibration sensations may metaphorically connote danger, which would benefit drivers and keep them alive and purchasing. Yet vibration sensations can also be pleasant, such as when one sits in a comforting massage chair. Will drivers be confused?

6.4.2 | Patronizing metaphors

Recall Conceptual Metaphor Theory's claim that metaphor use serves an epistemic function, helping people to grasp concepts that are

otherwise elusive or complex. This claim suggests when consumers may respond negatively to a metaphor for a target concept that they already understand with confidence. Such a negative reaction to patronizing metaphors may have been responsible for the failure of a virtual assistant that Microsoft included in user interfaces of earlier versions of its Office software. The assistant, known as Clippit or Clippy, drew a strong negative response from users and even Microsoft employees, and was removed altogether in later versions. The current analysis suggests that Clippy was unpopular because it leveraged a personification metaphor to help people understand functions that they already understood. Like an over-obliging house guest, Clippy continually asked users if they needed help with functions that they already mastered. That's not to say that Clippy was completely misconceived—people *do* understand and relate to electronic devices using their folk-psychological understanding of face-to-face encounters. But often they do so when they are *unsure* how things work or how they will respond (Waytz et al., 2010). If a user routine is already well-rehearsed, it should remain a streamlined, mechanical procedure. Introducing a personification metaphor comes across as an extra interference.

6.4.3 | Pandering metaphors

A related possibility: The target may be uncertain, and consumers may in fact want a concretizing metaphor, but the particular metaphor chosen may misfire if it refers to a pandering source. If you ask consumers to think about a target in terms of a source that seems simplistic, or overly tailored to their presumed interests and lifestyle, you can come across as implying that they are dim or unsophisticated or narrow. You are sending a tacit message: "You probably need to understand the target in terms of this limited set of things you can grasp."

An example will help clarify. Between 2012 and 2014, Republican groups like Americans for Shared Prosperity bankrolled a series of anti-Obama ads that tried to woo female voters by depicting President Obama as a bad boyfriend. In the ad, a woman describes her declining "relationship with Barack": "In 2008, I fell in love. His online profile made him seem so perfect," she says. "Smart, handsome, charming, articulate, all the right values. I trusted him….by 2012, our relationship was in trouble. But I stuck with him because he promised he'd be better." In another ad, a woman complains to her friend "Why do I always fall for guys like this?" A third shows a woman talking to a cardboard cutout of the president: "You're just not the person I thought you were. It's not me, it's you," she says before a voice-over intones "tell us why you're breaking up with Obama."

Long story short: This communication strategy seriously backfired (Brand, 2014). Many women were offended by the implication that they could only evaluate political candidates through a prism of romantic relationships rather than level-headed reason and serious consideration of policy. Here, reactance motivated a rejection not of any metaphor, but specifically a metaphor whose source caters to the lowest common denominator.

7 | CONCLUSION

Decades of research in marketing and consumer psychology continue to grapple with the problem of crafting communications and environments that influence consumers' conceptions of abstract ideas in such various domains as health, hospitality, romance, and finance. Metaphor use is one strategy for achieving these goals. Conceptual Metaphor Theory provides the conceptual framework, explaining how metaphors make the unknown known by transferring knowledge, emotions, and problem-solving heuristics between superficially remote concepts. The theory is backed by numerous experimental studies showing that subtle bodily states and exposure to metaphorically laced communications have theoretically specified effects on a range of consumer outcomes. Yet it is a strategy that carries with it notable risk if not used with an overarching appreciation of the conceptual dynamics of metaphoric thinking. Metaphors used in the consumer realm can fall flat or, worse, backfire by confusing or insulting consumers. Metaphors must be chosen wisely based on theoretically-informed considerations of how message recipients think and feel about the target abstraction, the concrete source for comparison, and the mental mapping that connects them.

ACKNOWLEDGMENTS

The preparation of this article was supported in part through a grant from the National Cancer Institute, R01CA185378.

REFERENCES

Ackerman, J. M., Nocera, C. C., & Bargh, J. A. (2010). Incidental haptic sensations influence social judgments and decisions. *Science*, *328*, 1712–1715.

Betsch, C., Böhm, R., Airhihenbuwa, C. O., Butler, R., Chapman, G. B., Haase, N., … Nurm, Ü. K. (2016). Improving medical decision making and health promotion through culture-sensitive health communication: An agenda for science and practice. *Medical Decision Making*, *36*, 811–833.

Boroditsky, L., & Ramscar, M. (2002). The roles of body and mind in abstract thought. *Psychological Science*, *13*, 185–189.

Brand, A. (2014). Republicans pull "bad boyfriend" card again in new anti-Obama ad. http://www.msnbc.com/msnbc/republicans-bad-boyfriend-card-again-new-anti-obama-ad#. September 22, 2014

Chen, Z., Poon, K., & DeWall, C. (2015). Cold thermal temperature threatens belonging: The moderating role of perceived social support. *Social Psychological and Personality Science*, *6*, 439–446.

Cooper, J. (2007). *Cognitive dissonance: 50 years of a classic theory*. London: Sage Publications.

Dasgupta, N., DeSteno, D., Williams, L. A., & Hunsinger, M. (2009). Fanning the flames of prejudice: The influence of specific incidental emotions on implicit prejudice. *Emotion*, *9*, 585–591.

Dong, P., Huang, X., & Zhong, C. B. (2015). Ray of hope: Hopelessness increases preferences for brighter lighting. *Social Psychological and Personality Science*, *6*, 84–91.

Dong, P., Huang, X., & Zhong, C. B. (2017). *Hopelessness toward economic future and lighting electricity consumption*. Unpublished manuscript, University of Toronto.

Epley, N., Waytz, A., & Cacioppo, J. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, *114*, 864–886.

Forceville, C., & Urios-Aparisi, E. (Eds.). (2009). *Multimodal metaphor*. Berlin, Germany: Mouton De Gruyter.

Frimer, J. A., & Sinclair, L. (2016). Moral heroes look up and to the right. *Personality and Social Psychology Bulletin*, *42*, 400–410.

Gibbs, R. (2008). *The Cambridge handbook of metaphor and thought*. New York: Cambridge University Press.

Goatly, A. (2011). *The language of metaphors*, 2nd ed. England: Routledge.

Hauser, D., & Schwarz, N. (2015). The war on prevention: Bellicose cancer metaphors hurt (some) prevention intentions. *Personality and Social Psychology Bulletin*, *41*, 66–77.

Hay, J. L., Buckley, T. R., & Ostroff, J. S. (2005). The role of cancer worry in cancer screening: A theoretical and empirical review of the literature. *Psycho-Oncology*, *14*, 517–534.

Hodge, C. (2013). Indecision on gays for the boy scouts. Times Video. Retrieved from http://www.nytimes.com/video/us/100000002049383/indecision-on-gays-for-the-boy-scouts.html?emc=eta1. February 7, 2013

Hodson, G., Choma, B. L., Boisvert, J., Hafer, C. L., MacInnis, C. C., & Costello, K. (2013). The role of intergroup disgust in predicting negative outgroup evaluations. *Journal of Experimental Social Psychology*, *49*, 195–205.

Hodson, G., & Dhont, K. (2015). The person-based nature of prejudice: Individual difference predictors of intergroup negativity. *European Review of Social Psychology*, *26*, 1–42.

Horberg, E., Oveis, C., Keltner, D., & Cohen, A. (2009). Disgust and the moralization of purity. *Journal of Personality and Social Psychology*, *97*, 963–976.

Hung, I. W., & Labroo, A. A. (2011). From firm muscles to firm willpower: Understanding the role of embodied cognition in self-regulation. *Journal of Consumer Research*, *37*, 1046–1064.

IJzerman, H., Gallucci, M., Pouw, W. T. J. L., Weißgerber, S. C., Van Doesum, N. J., & Williams, K. D. (2012). Cold-blooded loneliness: Social exclusion leads to lower skin temperatures. *Acta Psychologica*, *140*, 283–288.

IJzerman, H., & Semin, G. R. (2009). The thermometer of social relations: Mapping social proximity on temperature. *Psychological Science*, *20*, 1214–1220.

Inagaki, T., & Eisenberger, N. (2013). Shared neural mechanisms underlying social warmth and physical warmth. *Psychological Science*, *24*, 2272–2280.

Inbar, Y., Pizarro, D. A., Knobe, J., & Bloom, P. (2009). Disgust sensitivity predicts intuitive disapproval of gays. *Emotion*, *9*, 435–439.

Jostmann, N. B., Lakens, D., & Schubert, T. W. (2009). Weight as an embodiment of importance. *Psychological Science*, *20*, 1169–1174.

Kaspar, K. (2013). A weighty matter: Heaviness influences the evaluation of disease severity, drug effectiveness, and side effects. *PLoS ONE*, *8*, e78307.

Keefer, L. A., Landau, M. J., Sullivan, D., & Rothschild, Z. K. (2011). Exploring metaphor's epistemic function: Uncertainty moderates metaphor-consistent priming effects on social perceptions. *Journal of Experimental Social Psychology*, *47*, 657–660.

Keefer, L. A., Landau, M. J., Sullivan, D., & Rothschild, Z. K. (2014). Embodied metaphor and abstract problem solving: Testing a metaphoric fit hypothesis in the health domain. *Journal of Experimental Social Psychology*, *55*, 12–20.

King, M. L., Jr. (1963). *I have a dream*. Retrieved from http://www.americanrhetoric.com/speeches/mlkihaveadream.htm. 28 August 1963

Kiviniemi, M. T., & Ellis, E. M. (2014). Worry about skin cancer mediates the relation of perceived cancer risk and sunscreen use. *Journal of Behavioral Medicine*, *37*, 1069–1074.

Kövecses, Z. (1991). A linguist's quest for love. *Journal of Social and Personal Relationships*, *8*, 77–97.

Kövecses, Z. (2005). *Metaphor in culture: Universality and variation*. New York: Cambridge University Press.

Kövecses, Z. (2010). *Metaphor: A practical introduction*. New York: Oxford University Press.

Krishna, A. (Ed.) (2009). *Sensory marketing: Research on the sensuality of products*. New York, NY: Routledge.

Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought*, 2nd ed. (pp. 202–250). Cambridge, UK: Cambridge University Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.

Landau, M. J. (2017). *Conceptual metaphor in social psychology: The poetics of everyday life*. New York, NY: Routledge.

Landau, M. J., Arndt, J., & Cameron, L. D. (2018). Do metaphors in health messages work? Exploring emotional and cognitive factors. *Journal of Experimental Social Psychology*, *74*, 135–149.

Landau, M. J., Keefer, L. A., & Rothschild, Z. K. (2014a). Epistemic motives moderate the effect of metaphoric framing on attitudes. *Journal of Experimental Social Psychology*, *53*, 125–138.

Landau, M. J., Nelson, N. M., & Keefer, L. A. (2015). Divergent effects of metaphoric company logos: Do they convey what the company does or what I need? *Metaphor and Symbol*, *30*, 314–338.

Landau, M. J., Oyserman, D., Keefer, L. A., & Smith, G. C. (2014b). The college journey and academic engagement: How metaphor use enhances identity-based motivation. *Journal of Personality and Social Psychology*, *106*, 679–698.

Landau, M. J., Robinson, M., & Meier, B. P. (2014c). *The power of metaphor: Examining its influence on social life*. Washington, DC: APA Press.

Landau, M. J., Vess, M., Arndt, J., Rothschild, Z. K., Sullivan, D., & Atchley, R. A. (2011). Embodied metaphor and the "true" self: Priming entity expansion and protection influences intrinsic self-expressions in self-perceptions and interpersonal behavior. *Journal of Experimental Social Psychology*, *47*, 79–87.

Lee, S. H., & Cotte, J. (2009). Post-purchase consumer regret: Conceptualization and development of the PPCR scale. In A. L. McGill, & S. Shavitt (Eds.), *Advances in consumer research*, Vol. *36* (pp. 456–462). Duluth, MN: Association for Consumer Research.

Lee, S. W. S., & Schwarz, N. (2010a). Dirty hands and dirty mouths: Embodiment of the moral purity metaphor is specific to the motor modality involved in moral transgression. *Psychological Science*, *21*, 1423–1425.

Lee, S. W. S., & Schwarz, N. (2010b). Washing away postdecisional dissonance. *Science*, *328*, 709.

Lee, S. W. S., & Schwarz, N. (2014). Framing love: When it hurts to think we were made for each other. *Journal of Experimental Social Psychology*, *54*, 61–67.

Liljenquist, K., Zhong, C. B., & Galinsky, A. D. (2010). The smell of virtue: Clean scents promote reciprocity and charity. *Psychological Science*, *21*, 381–383.

Maass, A., Suitner, C., & Arcuri, L. (2014). The role of metaphors in intergroup relations. In M. Landau, M. Robinson, & B. Meier (Eds.), *The power of metaphor: Examining its influence on social life* (pp. 153–177). Washington, DC: APA Press.

Magnini, V. P., & Kim, S. (2016). The influences of restaurant menu style, background color, and physical weight on consumers' perceptions. *International Journal of Hospitality Management*, *53*, 42–48.

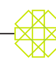
Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954–969.

Martin, L. L. (1986). Set/reset: The use and disuse of concepts in impression formation. *Journal of Personality and Social Psychology*, *51*, 493–504.

Matsuki, K. (1995). Metaphors of anger in Japanese. In J. Taylor, & R. MacLaury (Eds.), *Language and the cognitive construal of the world* (pp. 137–151). Berlin: Mouton de Gruyter.

McCrae, R. R., & Costa, P. T. Jr. (1999). A five-factor theory of personality. *Handbook of Personality: Theory and Research*, *2*, 139–153.

Meier, B. P., Moeller, S., Riemer-Peltz, M., & Robinson, M. (2012). Sweet taste preferences and experiences predict pro-social inferences,



personalities, and behaviors. *Journal of Personality and Social Psychology*, *102*, 163–174.

Meier, B. P., Robinson, M. D., & Clore, G. L. (2004). Why good guys wear white: Automatic inferences about stimulus valence based on brightness. *Psychological Science*, *15*, 82–87.

Meier, B. P., Scholer, A., & Fincher-Kiefer, R. (2014). Conceptual metaphor theory and person perception. In M. Landau, M. Robinson, & B. Meier (Eds.), *The power of metaphor: Examining its influence on social life* (pp. 43–64). Washington, DC: APA Press.

Mogilner, C., Hershfield, H. E., & Aaker, J. (2018). Rethinking time: Implications for well-being. *Consumer Psychology Review*, *1*, 41–53.

Moretti, L., & di Pellegrino, G. (2010). Disgust selectively modulates reciprocal fairness in economic interactions. *Emotion*, *10*, 169–180.

Moser, K. (2007). Metaphors as symbolic environment of the self: How self-knowledge is expressed verbally. *Current Research in Social Psychology*, *12*, 151–178.

Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as a limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, *74*, 774–789.

Ottati, V. C., & Renstrom, R. A. (2010). Metaphor and persuasive communication: A multifunctional approach. *Social and Personality Psychology Compass*, *4*, 783–794.

Ottati, V. C., Renstrom, R. A., & Price, E. (2014). The metaphorical framing model: Political communication and public opinion. In M. Landau, M. Robinson, & B. Meier (Eds.), *The power of metaphor: Examining its influence on social life* (pp. 179–202). Washington, DC: APA Press.

Ottati, V. C., Rhoads, S., & Graesser, A. C. (1999). The effect of metaphor in processing style in a persuasion task: A motivational resonance model. *Journal of Personality and Social Psychology*, *77*, 688–697.

Oyserman, D. (2015). *Pathways to success through identity-based motivation*. New York: Oxford University Press.

Oyserman, D., Bybee, D., Terry, K., & Hart-Johnson, T. (2004). Possible selves as roadmaps. *Journal of Research in Personality*, *38*, 130–149.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York, NY: Springer-Verlag.

Piqueras-Fiszman, B., Harrar, V., Alcaide, J., & Spence, C. (2011). Does the weight of the dish influence our perception of food? *Food Quality and Preference*, *22*, 753–756.

Piqueras-Fiszman, B., & Spence, C. (2012). The weight of the container influences expected satiety, perceived density, and subsequent expected fullness. *Appetite*, *58*, 559–562.

Postrel, V. (2003). *The substance of style: How the rise of aesthetic value is remaking commerce, culture, and consciousness*. New York, NY: Harper Collins.

Ritter, R., & Preston, J. (2011). Gross gods and icky atheism: Disgust responses to rejected religious beliefs. *Journal of Experimental Social Psychology*, *47*, 1225–1230.

Schneider, I. K., Parzuchowski, M., Wojciszke, B., Schwarz, N., & Koole, S. L. (2014). Weighty data: Importance information influence expected weight of digital information storage devices. *Frontiers in Psychology*, *5*, 1536.

Schneider, I. K., Rutjens, B. T., Jostmann, N. B., & Lakens, D. (2011). Weighty matters: Importance literally feels heavy. *Social Psychological and Personality Science*, *2*, 474–478.

Schubert, T. W. (2005). Your highness: Vertical positions as perceptual symbols of power. *Journal of Personality and Social Psychology*, *89*, 1–21.

Slepian, M. L., & Ambady, N. (2012). Fluid movement and creativity. *Journal of Experimental Psychology: General*, *141*, 625–629.

Slepian, M. L., Weisbuch, M., Rule, N. O., & Ambady, N. (2011). Tough and tender: Embodied categorization of gender. *Psychological Science*, *22*, 26–28.

Slepian, M. L., Weisbuch, M., Rutchick, A. M., Newman, L. S., & Ambady, N. (2010). Shedding light on insight: Priming bright ideas. *Journal of Experimental Social Psychology*, *46*, 696–700.

Spina, M., Arndt, J., Landau, M. J., & Cameron, L. D. (in press). Enhancing health message framing with metaphor and cultural values: Impact on Latinas' cervical cancer screening. *Annals of Behavioral Medicine*.

Steen, G., Dorst, A., Herrmann, B., Kaal, A., Krennmayr, T., & Pasma, T. (2010). *A method for linguistic metaphor identification*. Amsterdam, The Netherlands: Benjamins.

Thibodeau, P. H., & Boroditsky, L. (2011). Metaphors we think with: The role of metaphor in reasoning. *PLoS ONE*, *6*, e16782.

Thompson, L. (1990). Negotiation behavior and outcomes: Empirical evidence and theoretical issues. *Psychological Bulletin*, *108*, 515–532.

Tormala, Z. L., & Rucker, D. D. (2018). Attitude certainty: Antecedents, consequences, and new directions. *Consumer Psychology Review*, *1*, 72–89.

Touré-Tillery, M., & Fishbach, A. (2018). Three sources of motivation. *Consumer Psychology Review*, *1*, 123–134.

Troisi, J., & Gabriel, S. (2011). Chicken soup really is good for the soul: "Comfort food" fulfills the need to belong. *Psychological Science*, *22*, 747–753.

Vess, M. (2012). Warm thoughts: Attachment anxiety and sensitivity to temperature cues. *Psychological Science*, *23*, 472–474.

Waytz, A., Cacioppo, J., & Epley, N. (2010). Who sees human? The stability and importance of individual differences in anthropomorphism. *Perspectives on Psychological Science*, *5*, 219–232.

Wilkowski, B. M., Meier, B. P., Robinson, M. D., Carter, M. S., & Feltman, R. (2009). "Hot-headed" is more than an expression: The embodied representation of anger in terms of heat. *Emotion*, *9*, 464–477.

Williams, L. E., & Bargh, J. A. (2008). Experiencing physical warmth promotes interpersonal warmth. *Science*, *322*, 606–607.

Wyer, R. S., & Budesheim, T. L. (1987). Person memory and judgments: The impact of information that one is told to disregard. *Journal of Personality and Social Psychology*, *53*, 14–29.

Yu, N. (1998). *The contemporary theory of metaphor: A perspective from Chinese*. Philadelphia, PA: Benjamins.

Zestcott, C. A., Stone, J., & Landau, M. J. (2017). The role of conscious attention in how weight serves as an embodiment of importance. *Personality and Social Psychology Bulletin*, *12*, 1712–1723.

Zhong, C. B., & House, J. (2014). Dirt, pollution, and purity: A metaphorical perspective on morality. In M. J. Landau, M. D. Robinson, & B. P. Meier (Eds.), *The power of metaphor: Examining its influence on social life* (pp. 109–132). Washington, DC: APA Press.

Zhong, C. B., & Leonardelli, G. J. (2008). Cold and lonely: Does social exclusion literally feel cold? *Psychological Science*, *19*, 838–842.

Zhong, C., & Liljenquist, K. (2006). Washing away your sins: Threatened morality and physical cleansing. *Science*, *313*, 1451–1452.

How to cite this article: Landau MJ, Zhong C-b, Swanson TJ. Conceptual metaphors shape consumer psychology. *Consum Psychol Rev*. 2018;1:54–71. https://doi.org/10.1002/arcp.1002