Organizational Behavior and Human Decision Processes 128 (2015) 74–83

Contents lists available at ScienceDirect

Organizational Behavior and Human Decision Processes

journal homepage: www.elsevier.com/locate/obhdp

Who you are is where you are: Antecedents and consequences of locating the self in the brain or the heart

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ARTICLE INFO

Article history:
Received 23 November 2013
Accepted 8 March 2015
Available online 18 April 2015
Accepted by Francesca Gino

Keywords:
Self-concept
Self-construal
Identity
Brain
Heart
Embodied cognition
Judgment and decision-making

ABSTRACT

Eight studies explored the antecedents and consequences of whether people locate their sense of self in the brain or the heart. In Studies 1a–f, participants' self-construals consistently influenced the location of the self: The general preference for locating the self in the brain rather than the heart was enhanced among men, Americans, and participants primed with an independent self-construal, but diminished among women, Indians, and participants primed with an interdependent self-construal. In Study 2, participants' perceived location of the self influenced their judgments of controversial medical issues. In Study 3, we primed participants to locate the self in the brain or the heart, which influenced how much effort they put into writing a support letter for and how much money they donated to a charity for a brain disease (Alzheimer's disease) or a heart disease (coronary artery disease). Implications for research on the self-concept, judgment, and decision-making are discussed.

"Tell me where is fancy bred
Or in the heart or in the head"
[~ William Shakespeare, *The Merchant of Venice*]

Introduction

Whether the heart or the brain represents the seat of the self is a question that can be traced back to the ancient Greek philosophers. Aristotle, for example, favored the heart, which he considered the center of all thoughts and emotions (Aristotle, 350 B.C.). In contrast, Hippocrates favored the brain, writing that both joys and sorrows come from nothing else but the brain (Hippocrates, 400 B.C.). Social scientists today appear to side with Hippocrates: Scholars across several subfields of psychology and organizational behavior have studied different aspects of the self, including memories (e.g., Levine et al., 1998), personality traits (e.g., John & Srivastava, 1999), self-defining attributes (e.g., Markus, 1977), career narratives (Ibarra & Barbulescu, 2010), and ideas about who a person might become (Markus & Nurius, 1986) or might have been (Obodaru, 2012). If the self is the sum of our memories, reflections, and thoughts about ourselves, the unavoidable, if implicit, premise of modern scholarship appears to be that the brain contains the self (Kovach, 2002; McConnell, 2011). This premise is perhaps most unequivocal among social neuroscientists, who directly study which areas of the brain are associated with the self (e.g., Goldberg, Harel, & Malach, 2006; Gusnard, Akbudak, Shulman, & Raichle, 2001; Lou et al., 2004; Mitchell, Banaji, & MacRae, 2005).

Although the self that interests social scientists seems to be confined to the brain, the current research explores where people actually locate their sense of self. Our first research question explores whether people side with Aristotle and perceive the self to be located in the heart or whether they side with Hippocrates and contemporary scholars and perceive the self to be located in the brain. Our second research question examines whether the perceived location of the self affects people's judgments and decision-making. Overall, the current research thus provides the first investigation into the antecedents and consequences of where people locate the self.

Where is the self?

The self-concept is a central construct in psychology and organizational behavior. It plays a key role in multiple branches

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http://dx.doi.org/10.1016/j.obhdp.2015.03.004
0749-5978/

of psychology, including social psychology (e.g., Baumeister, 1998), cultural psychology (e.g., Markus & Kitayama, 1991), personality psychology (e.g., Robins, Norem, & Cheek, 1999), developmental psychology (e.g., Howe, Courage, & Edison, 2003), narrative psychology (e.g., McAdams, 2001), and cognitive psychology (e.g., Kihlstrom, Beer, & Klein, 2003). Scholars have also documented the critical role of the self-concept in understanding numerous phenomena in organizational behavior, such as managing work role transitions (Ibarra, 1999), achieving leadership success (DeRue & Ashford, 2010), developing organizational commitment (Pratt, 2000), coping with "dirty work" or job loss (Ashforth & Kreiner, 1999; Petriglieri, 2011), wrestling with gender discrimination (Ely, 1995), managing work and non-work boundaries (Ramarajan & Reid, 2013), and dealing with the unprecedented freedom to make occupational choices (Obodaru, 2012).

Across all of these areas of investigation, the self-concept has generally been viewed and studied as an abstract construct – as a set of memories, attributes, personality traits, or autobiographical stories. This view of the self, however, may be incomplete. Several scholars have suggested that the sense of self can also include the physical body (e.g., Attias & Goodwin, 1999; Schubert & Koole, 2009; Tucker, 1985). This idea is not new: Over 100 years ago, William James wrote that "the body is the innermost part of the material self in each of us; and certain parts of the body seem more intimately ours than the rest" (James, 1890, p. 292). Even though this idea has been present for some time now, research on the self-concept has yet to test it and uncover which parts of the body are most strongly connected to the sense of self.

The possible connection between the self and a specific part of the body aligns with recent work on embodied cognition which has demonstrated that people tend to mentally represent abstract concepts in concrete and physical ways (e.g., Barsalou, 1999, 2008; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2006). For example, people cognitively link the abstract concept of moral purity to physical cleanliness (Schnall, Benton, & Harvey, 2008; Zhong & Liljenquist, 2006), the abstract concept of interpersonal warmth to physical warmth (Williams & Bargh, 2008), and the abstract concept of power to expansive body postures (Carney, Cuddy, & Yap, 2010; Huang, Galinsky, Gruenfeld, & Guillory, 2011; Park, Streamer, Huang, & Galinsky, 2013). These links have been shown to have important consequences for judgment and decision-making in different domains, such as moral judgments (Schnall et al., 2008), person perception (Williams & Bargh, 2008), and risk-taking (Carney et al., 2010). Thus, this stream of research suggests not only that the abstract concept of the self may be linked to something physical, concrete, and body-related, but also that there is value in better understanding this link as it may inform judgment and decision-making in various contexts.

Antecedents of the location of the self: the impact of self-construal

There are multiple possible antecedents that may influence where people perceive their sense of self to be located. In the current research, our goal is to take a first step toward better understanding what makes people locate the self in different parts of the body by focusing on an antecedent that is conceptually related to the self and may therefore be highly relevant for this purpose: independent vs. interdependent self-construal. As previously mentioned, there is a long tradition of thought in both philosophy and psychology that points to the brain and, to a lesser extent, the heart as the most likely candidates for the embodiment of the self. Our key hypothesis is that although people generally tend to locate their sense of self in the brain rather than the heart, this preference is significantly stronger for people with an independent self-construal than for people with an interdependent self-construal.

Key features of an *independent self-construal* are asserting the autonomous nature of the self, realizing one's internal attributes, and influencing one's environment (Markus & Kitayama, 1991). In pursuit of these self-relevant goals, people with independent self-construals often engage in thoughts, conversations, and behaviors that are conceptually related to the brain. For example, their daily routines might involve thinking about what they want to do, discussing their goals with others, and influencing others in order to realize their desires. Reinforcing the independent and autonomous nature of the self, these activities implicate the body's "executive decision-maker" – the brain. Consequently, as people with independent self-construals engage in, and thus define themselves through, activities that are associated with the brain, we hypothesize that they locate the self in the brain.

In contrast, key features of an *interdependent self-construal* are being part of a group, maintaining harmonious relationships, and adjusting to others (Markus & Kitayama, 1991). In pursuit of these self-relevant goals, people with interdependent self-construals often engage in thoughts, conversations, and behaviors that are conceptually related not only to the brain, but also to the heart. For example, their daily routines might involve thinking about how to relate to friends and family, expressing their love and admiration for others, and accommodating to others' desires in order to maintain interpersonal harmony. Reinforcing the interdependent and socially engaging nature of the self, these activities implicate the body's "symbol of love" – the heart. Consequently, as people with interdependent self-construals engage in, and thus define themselves through, activities that are associated not only with the brain, but also with the heart, we hypothesize that their tendency to locate the self in the brain vis-à-vis the heart is attenuated (but not necessarily to a point where the heart becomes the predominant option). Our hypotheses are consistent with cross-cultural research on cognitive linguistics showing that the interdependent Chinese are more likely to reference the heart when talking about the self as opposed to independent Westerners, who are more likely to reference the head or brain (e.g., Yu, 1998, 2003). We therefore hypothesize:

Hypothesis 1. People with an independent self-construal are more likely to locate the self in the brain rather than the heart than people with an interdependent self-construal.

Consequences of the location of the self: judgment and decision-making

The current research also explores the consequences that stem from the perceived location of the self. Our goal is to take a first step toward demonstrating that whether someone is a "brain person" (i.e., a person who believes the sense of self to be located in the brain) or a "heart person" (i.e., a person who believes the sense of self to be located in the heart) may be a feature of a person's psyche that influences attitudes, motivations, and behaviors. We sought to capture some of these consequences by exploring how the perceived location of the self affects judgments and decision-making in different domains. Our key hypothesis is that people who locate the self in the brain will evaluate stimuli that are conceptually related to the brain more favorably, whereas people who locate the self in the heart will evaluate stimuli that are conceptually related to the heart more favorably.

Our reasoning aligns with research on persuasion and message tailoring which has demonstrated that messages adapted to match the recipients' characteristics are processed more fluently and evaluated more favorably (Cesario, Grant, & Higgins, 2004; Hirsh,