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Does growing up rich and insecure make objects seem more human? Childhood material and social environments interact to predict anthropomorphism

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ABSTRACT

Despite broad, multi-disciplinary interest in the phenomenon of anthropomorphism, the psychological determinants of individual differences in anthropomorphic tendencies remain largely unaddressed. In an effort to address this gap, this research investigates the relationship between childhood material and social environments and adult anthropomorphic tendencies. Specifically, we hypothesize that people who grew up wealthy and insecurely attached are the most likely to anthropomorphize because of their simultaneously high needs for effectance and sociality. Consistent with this prediction, three studies find that people with high childhood socioeconomic status (SES) and insecure attachment styles are the most likely to anthropomorphize. Furthermore, in support of our theorizing, we show that childhood SES interacts with attachment style to predict anthropomorphic tendencies because the parents of those who grew up wealthy tended to use a family communication style that emphasized autonomy and mastery. Ultimately, our findings suggest that individual differences in adult anthropomorphic tendencies are rooted in childhood environments.

1. Introduction

From pets to gadgets to celestial beings, people frequently treat nonhuman agents as human-like. Cats are not to be trusted, while dogs are shamed for eating socks and crayons (www.dogshaming.com); technology is cursed for having a mind of its own; and when the weather is erratic, Mother Nature is accused of having mood swings. This phenomenon of anthropomorphism, the attribution of human-like characteristics, motivations, or mental states to nonhuman agents, has important implications. For example, relative to unanthropomorphized agents, people are more likely to trust, empathize with, attribute responsibility to, and be influenced by anthropomorphized agents (Gray, Gray, & Wegner, 2007; Newton, Newton, & Wong, 2017; Sproull, Subramani, Kiesler, Walker, & Waters, 1996; Tam, Lee, & Chao, 2013; Waytz, Heafner, & Epley, 2014).

Historically, anthropomorphism was considered a universal, automatic, and invariant tendency (Guthrie, 1993; Hume, 1757/1957). Thus, most anthropomorphism research has focused on either the extent to which specific nonhuman agents are anthropomorphized, the accuracy of anthropomorphic inferences in describing these agents, or the downstream consequences of anthropomorphism (Waytz, Morewedge, et al., 2010). However, a recent surge of research has begun to challenge this assumption: while it is still generally believed to be a universal tendency, findings demonstrate predictable inter-individual variability across age (Carey, 1985), culture (Asquith, 1986), personality (Letheren, Kuhn, Lings, & Pope, 2016), and even brain structure (Cullen, Kanai, Bahrami, & Rees, 2014). Nevertheless, the psychological determinants of individual differences in anthropomorphic tendencies remain largely unaddressed (Waytz, Morewedge, et al., 2010).

To address this gap and contribute to growing scholarly interest in why some individuals are more or less likely to anthropomorphize (see Epley, Waytz, & Cacioppo, 2007; Letheren et al., 2016; Waytz, Cacioppo, & Epley, 2010), we investigate how childhood material and social environments interact to predict adult anthropomorphic tendencies. Across three studies, we hypothesize and find that people who grew up wealthy *and* insecurely attached are the most likely to anthropomorphize, suggesting that individual differences in adult anthropomorphic tendencies may ultimately be rooted in childhood experiences.

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2. Background

2.1. Why anthropomorphize?

Existing research proposes two distinct motivations for anthropomorphism: effectance and sociality. Effectance motivation refers to the need to demonstrate competence and personal causality (White, 1959). Also referred to as mastery motivation, it encompasses the desire to understand, predict, and control one's environment (Malakoff, Underhill, & Zigler, 1998). Anthropomorphism is believed to be motivated by effectance because it can enhance understanding when reasoning about nonhuman agents. As people are intimately familiar with how humans think and act, attributing human characteristics and motivations to a nonhuman agent is an intuitive way to make sense of its behavior (Waytz, Morewedge, et al., 2010). In support of this notion, increasing effectance motivation by manipulating the unpredictability of a nonhuman agent or by incentivizing mastery increases anthropomorphism: people make more anthropomorphic inferences about their computers the more they malfunction (i.e., act unpredictably); people are more likely to anthropomorphize gadgets when the gadgets are described as unpredictable versus predictable; and providing people with incentives to make accurate predictions about a robot increased anthropomorphism of that robot (Waytz, Morewedge, et al., 2010).

The sociality motivation involves the desire for social relationships and the fundamental need to belong (Epley, Waytz, Akalis, & Cacioppo, 2008; Mead, Baumeister, Stillman, Rawn, & Vohs, 2011). Anthropomorphism is believed to satisfy this motivation by turning nonhuman agents into potential sources of social connection. Consistent with this proposition, when people are chronically lonely or they experience experimentally-induced loneliness, they are more likely to anthropomorphize pets, gadgets, and celestial beings (Epley, Akalis, Waytz, & Cacioppo, 2008; Epley, Waytz, et al., 2008); interacting with anthropomorphized products can satisfy sociality needs (Mourey, Olson, & Yoon, 2017); and feeling socially connected can increase people's tendency to dehumanize others (a phenomenon that is closely related to, if not the inverse of, anthropomorphism; Waytz & Epley, 2012).

Despite broad consensus and a mounting body of evidence on the importance of these two motivations in predicting anthropomorphism, the developmental process of anthropomorphic tendencies has received relatively little empirical attention. Next, we consider how differences in childhood material and social environments may interact to impact adults' tendencies to anthropomorphize.

2.2. Childhood socioeconomic status and attachment styles as possible antecedents to anthropomorphic tendencies

Recent research demonstrates that the socioeconomic environments in which people grow up have a lasting influence on how they think and behave, influencing everything from physiological development (e.g., Belsky, Schlomer, & Ellis, 2012) to music, art, and food preferences (e.g., Hill, Rodeheffer, DelPriore, & Butterfield, 2013; Snibbe & Markus, 2005) and even what it means to be a good person (e.g., Markus & Kitayama, 2003). In high-socioeconomic status (SES) environments, parents tend to emphasize the independent, autonomous self (Carey & Markus, 2017). Children are taught that they are separate and distinct from others and to control their destinies and shape the world around them (Dubois, Rucker, & Galinsky, 2015; Stephens, Markus, & Townsend, 2007). In low-SES environments, parents tend to emphasize the interdependent, relational self (Carey & Markus, 2017). Children are taught that they are connected to and reliant on others and to be responsive to the expectations and requirements of those around them and the world at large (Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012; Kusserow, 1999; Snibbe & Markus, 2005). For example, a recent ethnographic study of American families' childrearing values and strategies revealed that whereas middle-class parents stressed the importance of self-direction and autonomy, working-class and poor parents stressed conformity to external authority (Weininger, Lareau, & LaRossa, 2009).

Because of the emphasis that high-SES families place on individual autonomy and mastery, high-SES children may have an especially strong effectance motivation (Malakoff et al., 1998). Accordingly, we contend that high-childhood-SES individuals are predisposed to anthropomorphize. Existing research lends support to this prediction: for instance, high-SES individuals report a greater sense of mastery and control and are subsequently more likely to make dispositional (as opposed to contextual) attributions for others' behavior (Kraus, Piff, & Keltner, 2009). As with anthropomorphic attributions, dispositional attributions help people understand and explain others' behavior by ascribing causality to stable, internal, and predictable characteristics and thus, can be interpreted as an indicator of a strong effectance motivation (Uleman, 2005; Waytz, Morewedge, et al., 2010). Importantly, consistent with findings underscoring the need to examine the interactive effects of effectance and sociality motivations (Gerber & Wheeler, 2009; Su, Jiang, Chen, & DeWall, 2017; Warburton, Williams, & Cairns, 2006), we contend that the magnitude of the relationship between childhood SES and adult anthropomorphic tendencies will ultimately depend on (i.e., be moderated by) developmental factors that likewise shaped the strength of an individual's sociality motivation, which we consider next.

Like childhood SES, the nature of people's childhood relationships with their primary caregivers has a lasting effect on how they think and behave, influencing everything from romantic behaviors (e.g., Selterman & Maier, 2013) to personality traits and values (e.g., Chen, Hewitt, & Flett, 2015) and consumer behavior (e.g., David & Bearden, 2017; Whelan & Dawar, 2016). Because of the significance of these early relationships, they serve as the basis for an enduring internal working model of relationships, or *attachment style*, that guides all future relationships (Bowlby, 1969, 1973, 1980). Though the tradition in the attachment literature started by sorting people into three discrete categories of attachment style (Ainsworth, Blehar, Waters, & Wall, 1978), research suggests that a dimensional (vs. categorical) conceptualization more adequately reflects individual differences in attachment styles (see Fraley, Hudson, Heffernan, & Segal, 2015 for a review). Thus, there now appears to be a general consensus that attachment styles are a function of two underlying dimensions: *anxiety*, which captures one's view of self and desire for interdependence, and *avoidance*, which captures one's view of others and desire for independence (e.g., Bartholomew & Horowitz, 1991; Brennan & Shaver, 1995; David & Bearden, 2017; Neave, Tyson, McInnes, & Hamilton, 2016; Whelan, Johnson, Marshall, & Thomson, 2016). When anxiety is high, people fear abandonment; when avoidance is high, people fear intimacy.

When people have a secure attachment style—characterized by low anxiety and low avoidance—they see themselves and others in a positive light. They report more committed, longer-term romantic relationships, and they rely on relationships with other people to meet their belongingness needs (Mikulincer & Shaver, 2007). When people have an insecure attachment style—characterized by high anxiety and/or high avoidance—they have a more negative view of themselves and/or others. Consequently, these individuals have difficulty maintaining romantic relationships (Feeney & Noller, 1990, 1992) and may seek alternative sources of connection and social support by anthropomorphizing non-human agents, in effect creating surrogate relationship partners. In support of this notion, individuals with insecure attachment styles report stronger relationships with God (Kirkpatrick, 1998), are more likely to derive psychological security from objects (Keefer, Landau, Rothschild, & Sullivan, 2012), and invest more heavily in brand relationships (Thomson, Whelan, & Johnson, 2012).

Admittedly, we are not the first to suggest that attachment style may predict individual differences in anthropomorphic tendencies. In Epley et al.'s (2007) seminal three-factor theory of anthropomorphism, they identify attachment style as a potential psychological determinant of