



LOUVAIN
School of Management

Advertising Human(nes)s : Empirical Integration of Anthropomorphism and Dehumanization

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Université catholique de Louvain

LOUVAIN RESEARCH INSTITUTE IN MANAGEMENT AND ORGANIZATIONS

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Prof. Matthew Thomson, Prof. Ingrid Poncin, Asst. Prof. Milan Okanović

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**Advertising Human(nes)s: Empirical Integration of
Anthropomorphism and Dehumanization**

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Introduction

People constantly acquire all sorts of information about entities they encounter in their environment. The content comes from diverse contexts and it is stored and organized on general and domain-specific levels in person's cognitive system (Caramazza & Shelton, 1998). Each level can represent knowledge sub-structures or schematas and it can have multiple representations, collections of concepts associations and the configuration of their relations (Barsalou, 1992; Thorndyke & Hayes-Roth, 1979). Marketers have an active role in providing the content as well as altering or creating new connections between existing concepts. It is estimated that a person is exposed to 5000 advertisement daily (Yankelovich, 2005). Thus, if a brand wants to stand out in the daily clutter of information, an effective strategy can be the use of a concept that is already known by everyone, has a positive connotation and is flexible, just like humanness (Aggarwal & McGill, 2007; Laksmidewi, Susianto, & Afiff, 2017).

The Concept of Humanness

Humanness is a vast, multifaceted concept (Bain, Vaes, & Leyens, 2013). It is stored within *the homocentric pool of knowledge* which englobes many implicit and explicit theories about people and a social world (Epley & Waytz, 2009). Empirical insights about the structure of this category are still limited, but the

content is known. Scholars propose that humanness encompasses characteristics that are seen as biologically and culturally essentialized (Aggarwal & McGill, 2007). The first covers an “essence” that is inherent, causal, natural and has informative properties, while the second includes a cultural, human made “essence” with sorting purposes (Bain et al., 2013). This “essence” can be reflected in traits that people possess. Traits can be typical to human nature and they can reflect human uniqueness (Haslam, Loughnan, Kashima, & Bain, 2009). Typically, or naturally human traits such as curiosity, emotional responsiveness, correspond to previously mentioned notion of biological “essence” (Haslam et al., 2009). Traits such as social refinement, sophistication, intelligence, are seen as uniquely human qualities and they are essentialized through socialization (Haslam et al., 2009). Another implicit theory about human “essence” is that it is reflected in the secondary complex emotions such as pride, sorrow, shame (Leyens et al., 2001). It is argued that the first step toward the ascription of humanness to any entity is the attribution of a *mind* (Epley & Waytz, 2009). A mind that is enabling agency (i.e. acting upon intentions, beliefs and desires) and a mind that is having the ability to experience basic and complex sensations (e.g. hunger, emotions, Gray, Gray, & Wegner, 2007; Waytz, Gray, Epley, & Wegner, 2010). Humanness is a convenient

concept for marketers because every consumer has instant directly available representations of her/his humanness (Haslam, Bain, Douge, Lee, & Bastian, 2005; Waytz, Epley, & Cacioppo, 2010). Moreover, it is a very flexible concept that can be applied to non-humans like products and brands (Aggarwal & McGill, 2007).

The Concept of Brand Functionality

Consumer brand and product knowledge can be defined in terms of the meaning about a brand and a product stored in the consumer memory (Keller, 2003). Managers often aspire to create brand concepts that are functionally useful, psychologically meaningful and culturally relevant (Schmitt, 2012). The consumer typically acquires information about the brand with the goal of receiving utilitarian benefit. This object-centred, functionally-driven engagement represents the innermost layer of brand representation (Schmitt, 2012). A function-based brand concept taps into core associations and information regarding the product performance, functionality and usefulness (Park, Milberg, & Lawson, 1991). Brand representations do not only cover the concept of functionality. Each person can have very personal meanings and ideas related to a brand (Keller, 2003; Schmitt, 2012). Additionally, brands can have a symbolic appearance and specific cultural

meaning associated with their positioning (Park et al., 1991; Schmitt, 2012).

However, in many situations people have mainly utilitarian-based opinions about products and brands, judging the brand's value based on functions and benefits it provides (Keller, 2012). It is probably a most basic level of engagement process that includes simple categorization and serves as an informational cue for brand attitudes (Schmitt, 2012).

Attitude

Consumer attitudes are a very important topic in the marketing literature as well as in social psychology. They are considered as guidelines to understanding complex behaviours (Walther, Gawronski, Blank, & Langer, 2009). Attitudes are mediators between values, intentions at one side and behaviours at the other side (Hansen, 2008). Consumer's attitude towards certain behaviour is predictive of the person's intention to engage in that behaviour (Ajzen, 2011). Specifically, the more favourable a person's attitude is towards some considered behaviour or an entity, the more likely it is that the person will want to engage in the behaviour or with an entity (Albarracin, Sunderrajan, Lohmann, Chan, & Jiang, 2018). An evaluation is in the core of attitudes. Attitudes relate to the extent to which the person perceives something or someone to be favourable or unfavourable, likeable

or unlikeable (Albarracin et al., 2018). While other behavioural proxies such as the intent are also important for understanding consumer choices, attitude remains a popular and a useful choice of measure (Smith & Swinyard, 1983). Traditionally, the question of attitude formation has been examined through the emphasis on the significance of affective processes, whereas research on attitude change has tended to focus on cognitive processes (Eagly & Chaiken, 1993). Since marketers frequently strive to change for the better and improve attitudes toward their product and brands, the second topic was especially interesting to consumer-behaviour researchers (Albarracin et al., 2018; Walther & Grigoriadis, 2004). Attitude change has been typically addressed in the conditioning literature that put forth findings suggesting that an initially neutral entity can become positive after being paired with a positive entity (De Houwer, 2007; De Houwer, Thomas, & Baeyens, 2001). Thus, an attitude toward a brand can be improved by having a person that enjoys some sort of recognition to appear in advertisings (Dimofte & Yalch, 2011).

Purpose of the Dissertation and Research Questions

As previously mentioned, a brand can be also positively denoted if it is associated or endowed with a positive concept such as humanness. Humanizing brands and using real people in advertising has always been part of marketers' tools. Late 19th -early 20th century industry and technology developments brought new challenges and opportunities. In order to induce consumers' use of unusual novel goods, marketers started exploiting an intuitive concept: *humanness* (Brown, 2010; Patsiaouras, Fitchett, & Saren, 2014). Humanlike presentation of products and brands bloomed, and by the end of the 20th century, spokes characters had become an important part of the western pop culture (Dotz & Husain, 2003; Garretson & Niedrich, 2004). Similarly, improved technology enabled advertisers to pass beyond drawings and use photos of people for staging products (Pinney, 1962). Moreover, technological innovations allowed elaborated (self)branding tactics by enabling business owners to stamp both their name and their face on a merchandise (Figure 1).

Figure 1. Examples of advertisements using overt and subtle techniques of brand humanization dating back to 1898 and 1900 respectively.



These techniques remain very common in practice, and consequences of their use for brands and products are well explored (Kahle & Homer, 1985; MacInnis & Folkes, 2017; Triantos, Plakoyiannaki, Outra, & Petridis, 2016). Humanization of brands fosters consumer-brand relationship, and using famous people, attractive models or experts improves brand attitudes (Fournier & Alvarez, 2012; McCracken, 1989; Till, 1998).

Conversely, very little is known regarding the effects of products and brands on the perception of people designated to represent or promote them. A recent study found that thrift-positioned brand can harm perception of its employees (Henkel, Boegershausen, Hoegg, Aquino, & Lemmink, 2018). Specifically, employees of a thrift-oriented brand are subtly dehumanized and seen as lacking

some aspects of humanness (Henkel et al., 2018). Just like nonhuman entities, such as products and brands, can be considered humanlike (i.e. anthropomorphized), humans can be considered as lacking humanness (i.e. dehumanized, Aggarwal & McGill, 2007; (Waytz, Epley, et al., 2010). However as much as anthropomorphism has been explored within the marketing literature, the topic of dehumanization was rarely discussed, keeping its roots in the originating discipline of the social psychology. Simultaneously, in the last decade more and more people become intrigued by the idea of being a brand spokesperson, advertise products on social media or just (publicly) test, comment, blog and vlog about brands and products for the sake of doing it (Smith, Kendall, & Knighton, 2018). From a practical stand point it is important to expand research scope and examine consequences especially if they are potentially deleterious for a person that is associated with a brand. Simply put, it is important to expand the scope of marketing research, not only focus on effects that humanness has on brands, but also explore effects that brands have on their “human representatives”-people.

From a theoretical standpoint, literature considers that anthropomorphism and dehumanization are interwoven and complementary, yet in-depth integration and empirical support are still missing (Epley, Schroeder, & Waytz, 2013). With

this thesis, we address this gap and build upon existing literature on *anthropomorphism* by connecting it to its flipside: *dehumanization* (Kwan & Fiske, 2008). Specifically, we first investigate just how little is needed for a brand to be anthropomorphised and a person to be dehumanized. Then we explore the underlying mechanism or how these effects occur in the advertisement setting. Finally, we examine to what extent are anthropomorphism and dehumanization intrinsically intertwined.

Research question 1: Is mere presentation of products and brands next to models enough to provoke anthropomorphism and dehumanization?

Research question 2: What is the underlying mechanism of anthropomorphism and dehumanization?

Research question 3: To what extent are anthropomorphism and dehumanization intertwined?

Thesis Overview

We start with literature overview highlighting most important findings regarding the two phenomena. So far studies have identified that explicit portrayal of objects (products and brands) as humanlike and explicit portrayal of people as lacking some aspects of humanness lead to anthropomorphism and dehumanization respectively (e.g. Aggarwal & McGill, 2007; K. Gray, Knobe, Sheskin, Bloom, & Barrett, 2011).

In Essay 1, we build upon existing literature and test the idea that more subtle portrayals can lead to anthropomorphism and dehumanization. We provide first empirical support that anthropomorphism and dehumanization can occur in the same context and that there is space for dehumanization within the marketing literature. Specifically, we propose that the mere pairing of an object with a person compared to the presentation of the object or the person alone can lead to both effects. To remain close to existing marketing practices and obtain ecological validity we use slightly manipulated real advertisements (Study 1 and Study 2). We also create our own stimuli, generalize findings on known and unknown brands (Study 3) and tackle the issue of model's gender (Study 4) as well as explicit sexualization of the model (Study 5) as potential boundaries. We also rely on a

single-paper meta-analysis to explore the effect size estimates. We rely on a between-participants factorial design and manipulate whether the Target is an object or a person and whether it appears in a Context portraying the Target together with its counterpart (person or brand) or alone. After randomly exposing participants to one out of four conditions, we asked participants to estimate the Target's humanness and report attitudes toward the Photo and the Target. Initial results show that pairing an object with a person (vs object alone) anthropomorphises the object and increases attitudes. However, pairing of an object with a person (vs person alone) dehumanizes the person leading to decreased evaluations. Although these results were encouraging and provide a necessary justification for bringing the dehumanization into the marketing field, our design had a few methodological constraints (e.g. demand effect) and did not allow us to verify directly the underlying mechanism.

In Essay 2, we focus on testing the underlying mechanism more directly as well as alternative explanations of the observed effects. Additionally, we address some of the limitations, keep the same two factorials between participant designs and improve stimuli and procedure. We explore whether 1) the transfer of attributes occurred between the object and the person and 2) the dehumanization

occurred due to the consumption associations. As functionality is a typical characteristic of an object (Schmitt, 2012), we examine the idea that this attribute was transferred from the object onto the person, potentially leading to instrumental view of the person, which is closely related to dehumanization (Gervais, Bernard, Klein, & Allen, 2013). Another alternative explanation of our effects is that branded products prime thoughts of consumption which are found to lead to dehumanized perceptions (Henkel et al., 2018). We examine whether our subtle manipulation of anthropomorphism and dehumanization is limited to the degree of product functionality and to the person's fame status. We exclude these possibilities and replicate previous results. We find that anthropomorphism and dehumanization due to presentation of two entities together (vs alone) do not depend on the functionality of products or on the person's fame. That is, moderate and moderately high functional objects are anthropomorphised to the same extent when presented with a person (vs alone). Moreover, an object is not more anthropomorphised when it is presented with a celebrity (vs a generic model) compared to its presentation alone. Likewise, as long as the person is presented with an object rather than alone, she/he is dehumanized, regardless of the object functionality or the person's fame.

In Essay 3, we use conditioning procedures to test the extent to which anthropomorphism and dehumanization are intrinsically interwoven. Conditioning procedures, or repetitive exposure to pairs of stimuli in spatio-temporal contiguity allow direct testing of the hypothesis that anthropomorphism and dehumanization can occur through transfer of evaluative and non-evaluative properties between two entities that are repeatedly presented together (Unkelbach, 2011). Many studies demonstrated that consumers tend to change their attitudes about brands after repeatedly seeing them paired with people perceived as having valuable assets like attractiveness or credibility (Till & Busler, 1998). That is, pairing brands with models leads to enhanced perception of brands because brands acquire evaluative and non-evaluative characteristics from the models (Galli & Gorn, 2011). Hence, we test the possibility that brand anthropomorphism occurs after repeated exposure to brand-model pairs (vs brand-brand pairs) through transfer of evaluative and non-evaluative property that is humanness or mind. We also examine a neglected question: What happens with the perception of a model after repeated presentation with a brand (vs with another model)? We hypothesize that this pairing will have negative consequences for models. We use a mixed (within and between) participants factorial experimental design. We manipulate whether respondents are

exposed to 16 brand-model mix pairs or to 8 brand-brand and 8 model-model pairs. We measure likeability and mind ratings of both targets before and after the pairing procedure. Using a linear mixed model analysis, we find that exposure to brand-model (vs brand-brand) pairings has positive effects for brands: increased likeability (Study 1 & Study 2) and increased mind ratings (Study 2). Although we do not notice decreased liking for models, results suggest that there is a drop in mind ratings of models paired with brands (vs models, Study 2). We discuss limitations of our studies (e.g. ecological validity) and contributions to conditioning literature as well as to anthropomorphism and dehumanization.

In the conclusion, we discuss shortcomings and contributions of these essays to the existing literature. The principal objective of this thesis was the theoretical elaboration and the empirical integration of the two research streams - anthropomorphism and dehumanization that examine ascription of humanness to non-humans and to persons. We argue that the attribution of humanness to objects and lack of it to people can be linked through cognitive mechanism(s) and occur due to activation and inhibition of homocentric pool of knowledge. Specifically, we claim that anthropomorphism and dehumanization can occur without explicit appeals of human-likeness of the object or the lack of humanness of the person,

respectively. We examine whether simple pairing of an object with a person is enough to activate homocentric pool of knowledge when the object is in the focus. We also propose that the presence of the object can interfere with activation of this concept and represent an obstacle for the recognition of the person's humanness. We use a variety of objects (e.g. more or less complex products, real and fictious brands) and diverse types of people (e.g. white and black women, generic or famous men). We tried to have a diverse sample of respondents (e.g. French and English speaking, different age and gender). Likewise, we try to exclude possible alternative explanations that might lay at the basis of these phenomena. We might have achieved reasonable internal validity; however, ecological generalizability is a major limitation of this thesis. Similarly, the sole presence of experimental design and the lack of diversity in methodological choices is justified given the purpose of this thesis. However, it also remains its biggest weakness.

Essay	Principal Objective	Research Design	Principal Findings	Contributions and Limitations
1	Literature overview and empirical integration of anthropomorphism and dehumanization	Studies 1-4: Between Participant Two-Factorial Experimental Design	Tangible and intangible objects (i.e. products and known and fictitious brands) can be anthropomorphised in a presence of a person. The same pairing (vs presentation alone) undermines perceived humanness of the person, regardless of the person's gender or skin tone.	Initial empirical support of the claimed complementarity of anthropomorphism and dehumanization. Unlike previous overt manipulations of anthropomorphism and dehumanization, our manipulation of mere pairing of an object with a person (vs their presentation alone) leads to both phenomena. Studies do not allow direct testing of the proposed underlying mechanism.
2	Testing the proposed underlying mechanism: activation and suppression of the homocentric pool of knowledge	Studies 1-3: Between Participant Two-Factorial Experimental Design	Replication and extension of previous findings using different stimuli. We find that moderate to highly functional products are not limited to subtle manipulation of anthropomorphism. Equally we find that presence of the object undermines person's humanness regardless of person's fame status	Direct test of proposed mechanisms: activation and inhibition of the concept of humanness. Excluding alternative explanations: transfer of attributes and contamination hypothesis and consumption setting. Methodology does not allow direct testing of possibility that the transfer of qualities occurs.

3	Testing alternative explanation: transfer of properties (i.e. likeability and mind) from models to brands and vice versa	Studies 1&2: Mixed (Within and Between) Participant Three Factorial Experimental Design	Repetitive exposure to brand-model pairs vs brand-brand pairings leads to transfer of likeability (Study 1 & Study 2) and mind (Study 2). Repetitive exposure to brand-model pairs vs model-model pairs leads to drop in mind ratings without undermining the likeability of models (Study 2).	Direct test of the hypothesis that pairing of a brand with a person leads to the transfer of evaluative and non-evaluative (i.e. mind) properties between these two entities. First glimpse regarding consequences of conditioning procedure on the unconditioned stimuli (i.e. the persons paired with the brands). However, we do not test whether some quality of the brand was transferred to the model.
4	Critical overview of the dissertation	/	/	Theoretical layout for future research and discussion of mplications for various domains and stakeholders

Contributions to Social Psychology

Our understanding of anthropomorphism and dehumanization is rooted in research stemming from social psychology. Besides outlining that “Identifying these factors that lead people to see nonhuman agents as humanlike also sheds light on the inverse process of dehumanization” (abstract in (Waytz, Epley, et al., 2010) researchers have not empirically tested how or to what extent these effects are actually interwoven. We sought this opportunity and tried to provide a first empirical integration and a proposition of mechanisms that can underline anthropomorphism and dehumanization. With our studies, we first show a novel context of their (co)occurrence, then, we tackled the question of the underlying mechanism through activation/inhibition of humanness and/or the transfer of properties between two proximate entities. We also mapped a range of targets (products, fictious, known brands) that can benefit from anthropomorphism or be vulnerable to dehumanization (female, male and famous models). Tacking the integration at the level of the social cognition and providing (a modest) support in this direction, we hope to have a fresh view on these phenomena and motivate further examination of their complementarity.

Contributions to Marketing Domain

Anthropomorphism has had a longstanding place in marketing. Its benefits have been intuitively understood from the 19th century, and researchers

have been eager to comprehend just how powerful this tactic can be (Brown, 2010). We add to existing literature by unveiling that a very subtle technic can serve this purpose. A brand does not have to be presented in a complex narrative and imagery, the simple presence of a person can help with brand's humanization. Additionally, only recently has there been a turn in understanding potential drawbacks of this tactic. Our effort to bring dehumanization into this discussion is very timely and important. Previously it was found that explicit sexualisation of models or focus on a price and money undermines perception of people's humanness (Gervais et al., 2013; Henkel et al., 2018). Our result is novel and subtle. We find that even the simple pairing of a person and a product or brand leads to a decrease in perception of the person's humanness. Effects that brands can have on the perception of people have not been a very elaborated issue in marketing, and today the interest and involvement with brands by everyday consumers is higher than ever (Gilani, Bolat, & Wilkin, 2018).

Social media are believed to empower users by allowing them an active voice with organisations (Smith et al., 2018). The growing social media platform is Instagram: a photo-based platform that many individuals use to reach out to brands in a hope to become their representatives or ambassadors (Smith et al., 2018). Within this thesis we drew inspiration for creating stimuli

from existing advertisement that can be found on this platform, which provides a certain level of ecological validity.

Ethical questions

All the theoretical approaches in one way or another interpret branding effects in terms of consumer knowledge about the brand and how it affects their behaviour (Hoeffler & Keller, 2002). Keller (1987, 2003) outlines customer-based brand equity as the differential effect that brand knowledge has on customer response to marketing activity. The basic premise of this model is that the influence of a brand lies in what customers have learned, heard, seen, felt about the brand as a result of their experiences over time. Put differently, the power of a brand is in what resides in the minds of customers (Keller, 1998). Connecting a brand with a concept that is already directly and profoundly in people's mind, can represent a powerful tactic. Indeed, humanizing brands and products is a practice that existed centuries ago, and mainstream managerial press continues to recommend it (Forbes, 2018). Simultaneously, brand endorsement is no longer reserved only to celebrities. Everyday consumers are also eligible to become brand representatives, so-called ambassadors, or become brands themselves (Perry, 2019; Peters, 1997). The co-existence of efforts to transform brands into humans on the one hand, and humans into brands on the other, may blur lines with understanding of both concepts.

If we focus on positives, obscuring these lines can potentially help people hedge against loneliness (Chen, Wan, & Levy, 2017), and facilitate the adoption of new technologies (Waytz, Heafner, & Epley, 2014). Companies pushing humanization of a brand can thus be regarded as using a societally responsible marketing. Similarly, branding oneself can be regarded as an expression of self-actualization, fulfilment of a need at the highest level of the Maslow 's hierarchy (1965).

A more negative approach invites questioning the practice of commercializing, consuming and profiting from this concept. Is humanness supposed to be thought as something that can be marketed, sold and packaged? If not, which regulations can limit the use of this concept and how? Although this thesis does not address these questions directly, by empirically integrating anthropomorphism and dehumanization, we open the door for these discussions.

Epistemological perspective

Logical positivism may be characterized by the view that scientific knowledge is based on factual knowledge (i.e. facts exist for and by themselves) and it is asserted that certain limited truths about the world can be logically inferred through repeated empirical observations (Grattan-Guinness, 1984). While post-positivists support this view and believe that objective truths exist, they recognize that individuals can not entirely be objective, thus human knowledge can be flawed and based on incomplete information (Hunt, 1991; Popper, 1961). The emphasis is on the importance of multiple measures and observations, each of which may possess different types of error, however taken together they bring closer human knowledge toward the actual reality (Trochim & Donnelly, 2001). The post-positivists believe that observations should be theory-laden and empirically tested.

Although my personal affinities incline toward the post-positivistic approaches, the epistemological positioning of this thesis is positivistic given that our research and interpretations are rooted in experimental manipulations and designs based on deductive logic, with objective to generalize findings through analysis that follows statistical and mathematical laws of probability.

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Essay 1:

Empirical integration of

Anthropomorphism and Dehumanization

Note : this essay is co-written as first author by doctoral candidate, in collaboration with Nicolas Kervyn (Université catholique de Louvain, Louvain Research Institute in Management-LouRiM) and Matthew Thomson (Western University, Ivey Business school)

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The target journals for this essay are the Journal of Advertising or the Psychology & Marketing

Abstract:

The ascription of humanness to non-humans and the failure to fully acknowledge it to people are known as anthropomorphism and dehumanization, respectively. These phenomena have evolved separately, but many scholars believe that they represent “two sides” of the same coin. However, theoretical and empirical integration is lacking. The aim of this research is to show that indeed these phenomena are complementary. We start with an overview of the main findings coming from two research domains: social psychology and marketing (i.e. advertising and consumer-behavior). Cumulative findings show that explicit presentation of products and brands as humanlike is successful in triggering anthropomorphism. Similarly, research from social psychology found that explicit appeals to group division, contrasting people with machines and animals as well as sexualization are triggering dehumanized perceptions. We show that even a simple advertising without explicit appeals to anthropomorphism or dehumanization can solicit these phenomena. Our analysis - 5 studies and a single meta-analysis- shows that displaying together a non-human (i.e. object: product, brand) with a human (i.e. person: model) vs presenting them alone leads to anthropomorphism of the object and dehumanization of the model. These encouraging results present the first empirical integration of the two phenomena.

Keywords : Anthropomorphism, dehumanization, advertisement.

Introduction

Understanding whether an entity is graced with humanlike qualities is not an easy task. There are many instances when people mistaken a mind as human or do not accept that a person has one. The first phenomenon is known as anthropomorphism, while the second as dehumanization (Kwan & Fiske, 2008). It has been acknowledged that there are many “missing links” between the attribution of humanness to non-humans and the failure to fully acknowledge it to people (Kwan & Fiske, 2008). Researchers focused on one or the other phenomenon separately, briefly discussing the potential similarities among them (e.g. Waytz, Epley, & Cacioppo, 2010) and often putting this topic in the “future research” section (e.g. Touré-Tillery & McGill, 2015). There have been many claims about the relationship between anthropomorphism and dehumanization. Some mention that these are inverse processes (Waytz, Epley, & Cacioppo, 2010), mirroring each other (Touré-Tillery & McGill, 2015), two stances of the same continuum or inextricably intertwined and complementary (Kwan & Fiske, 2008). However, there is very little empirical support configuring the nature of this relationship. We will start by highlight all theoretical commonalities between anthropomorphism and dehumanization. Then, we will present four studies that represent a first empirical integration.

Anthropomorphism

Anthropomorphism entails attribution of humanlike qualities to intangible, tangible, real or imagined non-human entities such as ascribing emotions to nature, intentions to gadgets or will to ghosts (Ahn, Kim, & Aggarwal, 2014; Waytz, Morewedge, et al., 2010). It is a phenomenon that raised interest among scholars from different disciplines and for different reasons.

The first study can be traced back to 1944 when two psychologists, Heider Fritz and Simmel Marianne, showed a video clip of geometrical objects moving in various directions to three groups of participants. The first group was instructed to describe the clip using their own words, the remaining two groups were asked to describe the movements of objects as if it were actions of people (Heider & Simmel, 1944). Authors noted that regardless of the instruction, 111 out of 114 participants ascribed motivations and intentions to geometrical figures (Heider & Simmel, 1944). Scientists concluded that insights about people perception could also be based on reasoning that people have while observing moving objects (Heider & Simmel, 1944). For psychologists the use of anthropomorphic language was insightful, however, for some scholars like biologists this practice was not judged as appropriate (e.g. Cuadrado & DurÃ, 2013). Using terms such as “in war against each other” for scientific explanations of chemical reactions

of unicellular organisms didn't seem suitable (e.g. Cuadrado & DurÃ, 2013; Davies, 2010; Kennedy, 1992). The prevalence of anthropomorphism among people with different educational level, social and cultural backgrounds attracted the attention of anthropologists.

In 1990's Stewart Guthrie published a new theory of religion, putting forth the idea that religious thought is just one instance of wider phenomena-anthropomorphism (Guthrie, 1995, 1997). The main underlying assumption was that there is an inherent cognitive predisposition or a default cognitive bias to (mis)interpret information in terms of humans and humanness (Guthrie, 1995; Kennedy, 1992). This seminal work served as a basis for the three-factor theory of anthropomorphism developed by Epley, Waytz, and Cacioppo (2007) which states that anthropomorphism is cognitively anchored, lies in the *activation of homocentric pool of knowledge*, and can satisfy two important evolutionary needs: *sociality and effectance motivation*. While first empirical and theoretical contributions come from psychology and anthropology, researchers and practitioners from marketing were the ones to refine the theory and explore consequences of its use in practice.

Homocentric pool of knowledge.

Implicit and explicit theories about the social world are stored in the *homocentric pool of knowledge* (Epley & Waytz, 2009). This "database"

becomes active when a person interacts with an entity similar to a human (Epley, Waytz, & Cacioppo, 2007). There are individual differences and some people are more sensitive to human-likeness than others (Chin et al., 2005) Waytz, Cacioppo, & Epley, 2010). For individuals who have a tendency to anthropomorphise, simply giving a name to an entity (e.g. a vegetable) activates medial prefrontal cortex and temporo-parietal junctions - brain zones implicated in assessment of others' mind and mental states (Vaes, Meconi, Sessa, & Olechowski, 2016). For others, these brain regions are activated when objects evoke humanness more explicitly (Krach et al., 2008; Ramsey & Hamilton, 2010).

Triggers of anthropomorphism.

Besides naming or making entities to move in complex patterns or at human speed, anthropomorphism can be trigger through literal or metaphorical presentation of objects as having humanlike qualities (Heider & Simmel, 1944; MacInnis & Folkes, 2017; Morewedge, Preston, & Wegner, 2007). It can be visual, by designing products with humanlike physiognomy comparable to facial expressions (e.g. a car grid arranged to look like a smile or a frown, Aggarwal & McGill, 2007). Likewise adding limbs, the humanlike body or simply arranging products in a way that evokes a social situation successfully shifts the reasoning from something to someone (Figure 2, Delbaere,

McQuarrie, & Phillips, 2011). Another way is through use of personal or possessive pronouns and verbal descriptions suggestive of human aptitudes or relations (Figure 2; Kim & McGill, 2011; Touré-Tillery & McGill, 2015). Sometimes simply adding a voice to a machine increases its human-likeness (Schroeder & Epley, 2016).

Figure 2. Examples of products presented in humanlike way.



Overall, an immense variety of entities can be seen as having a mind and humanlike characteristics: artificial animated or unanimated objects (e.g. robots, toothbrushes), nature, animals and even purely imagined and fictional entities

(e.g. God, brands, Ahn et al., 2014; Chin et al., 2005; Delbaere et al., 2011; Epley, Waytz, Akalis, & Cacioppo, 2008; Fournier & Alvarez, 2012).

Sociality Motivation.

It is argued that anthropomorphism is not only a cognitive predisposition, it is a functional bias and can satisfy important needs such as the need for social belongingness (Epley et al., 2008). Having meaningful connections with others is important for the psychological well-being, and deprivation of this need has aversive consequences for the person (Bastian et al., 2013). Anthropomorphism can curb this state. For example, pet owners feeling lonely compared to ones feeling socially included, ascribe more supportive traits to their pets (Epley et al., 2008). Forging social connection with humanlike creatures can reduce the feeling of loneliness and social exclusion if there are no reminders of supportive relationship with actual people (Bartz, Tchalova, & Fenerci, 2016). Similarly, for people that are persistently socially excluded, it might be the only source of relation as suggested by strong correlation of anthropomorphism and hoarding behaviour (i.e. tendency to acquire and excessively collect products, Neave, Jackson, Saxton, & Hönekopp, 2015; Timpano & Shaw, 2013). Sometimes, when people form a quasi-relationship with anthropomorphised products, they can be unaware of this compensation and underestimate the need to talk to their friends and family (Mourey, Olson, & Yoon, 2017).

Effectance motivation.

Effectance motivation encompasses the need for understanding, mastery and efficient interaction with one's environment (Epley et al., 2007). In many novel or uncertain situations there is a need to understand, explain and predict the behaviour of involved agents (Epley et al., 2007). Anthropomorphism may satisfy this motivation because knowledge about humans is richly represented in one's mind, and these explanations are readily accessible (Epley et al., 2007). When trying to understand others, people tend to reason egocentrically using readily accessible self-knowledge (Cooper & Mackie, 1983). The same applies when people try to explain and predict the behaviour of nonhuman agents (MacInnis & Folkes, 2017). For example, a computer that has unexpected malfunctions is seen as having more mind, compared to a computer that is working without interferences (Waytz et al., 2010). Similarly, a dog moving in random versus predictable patterns is seen as having more will, intentions, beliefs and desires (Waytz et al., 2010). In a situation without any control, people trust more anthropomorphic automatized vehicles and are more comprehensive toward this object if an inevitable accident occurs (Waytz, Heafner, & Epley, 2014). Those who long for social control and power enjoy more interacting with an anthropomorphic versus non-anthropomorphic slot machine because it allows them to satisfy this need (Kim & McGill, 2011).

Consequences.

Since humanness is not a synonym to positivity, ascribing humanness to non-human entities can lead to favourable and unfavourable outcomes (Aggarwal & McGill, 2007). For example, World Meteorological Organization started naming hurricanes because it is easier to attract public's attention and retain important information regarding a name rather than a numerical code ("Tropical Cyclone Naming," 2016). However, people often hold gender stereotypes, hence underestimate severity of hurricanes when they are named with female (vs male) names resulting in catastrophic consequences such as higher death rates (Jung, Shavitt, Viswanathan, & Hilbe, 2014a, 2014b). Research from marketing also revealed that pushing consumers to humanize brands and products can be a double-edged sword.

Positive consequences. Consumers generally welcome this practice (MacInnis & Folkes, 2017). As mentioned, anthropomorphising can satisfy need for social affiliation and in absence of real humans, this source can be an anthropomorphised rather than a non-anthropomorphised product and brand (F. Chen et al., 2013). Similarly, mastering an anthropomorphised high (vs low) status brand is more rewarding for individuals who seek social dominance (H. C. Kim & Kramer, 2015). For marketers it can imply consumers forging longer or more engaging relationships with their brands (Goode, Khamitov, &

Thomson, 2015; Wan & Aggarwal, 2014). For example, anthropomorphised brands are preferred over non-anthropomorphised brands when the situation encourages interpersonal relationship implying spending time with the other (Wan & Aggarwal, 2014). Thinking about one's car as a friend (vs an object) decreases willingness to replace it regardless of its actual quality (Chandler & Schwarz, 2010). Anthropomorphism can lead to prosocial behaviour such as conservation behaviour by fostering connectedness to nature (Tam, Lee, & Chao, 2013). Marketing social causes as humanlike (vs regular, e.g. bin with stamped "Please feed me, food waste only" vs "Please put food waste only") leads people to comply more because they anticipate feeling guilty if they do not help the "humanlike fellow" (Ahn et al., 2014).

Negative consequences. Unfortunately, anthropomorphism can have negative consequences for consumers and for brands. Humanlike entities might undermine feelings of autonomy and reduce enjoyment in game playing or lead to diffusion of responsibility and provoke consumers to indulge more in unhealthy or risky behaviours (Hur, Minjung Koo, & Hofmann, 2015; S. Kim & McGill, 2011; Sara Kim, Rocky Peng Chen, & Ke Zhang, 2016). When a person has the need to be unique, positioning an anthropomorphised compared to non-anthropomorphised brand as distinctive leads to lower attitudes and purchase intentions since they are interfering with the person's motive to appear

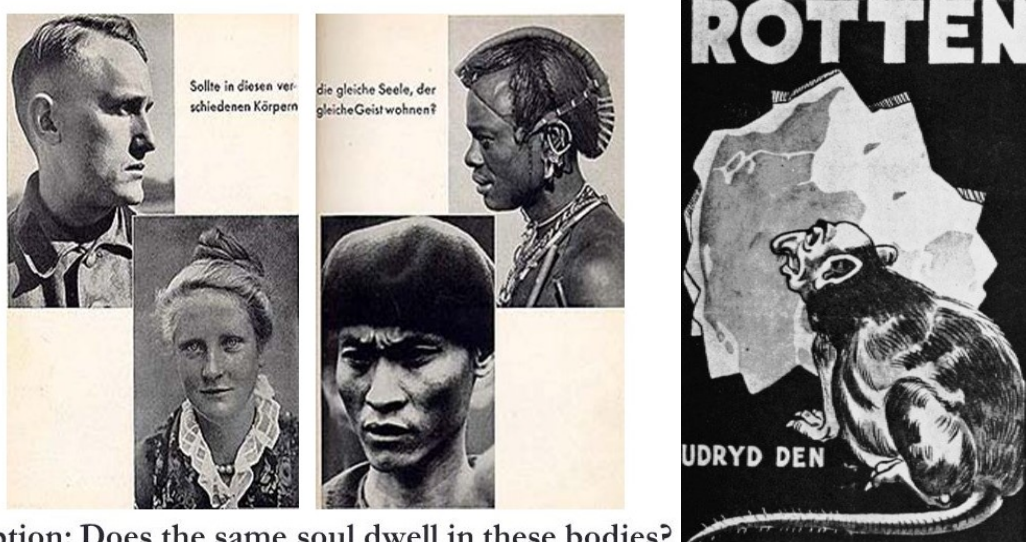
special (Puzakova & Aggarwal, 2018). Humanlike helpers might prompt reluctance when sensitive information is demanded, or implication in scandals might be more penalizing for anthropomorphised compared to non-anthropomorphised brands because the acts are perceived as intentionally intrusive (Kervyn, Chan, Malone, Korpusik, & Ybarra, 2014; Puzakova, Kwak, & Rocereto, 2013; Puzakova, Rocereto, & Kwak, 2013). Individuals can have generalized inter-personal distrust and prefer products with non-human names, or even humanlike, anthropomorphised entities over real people (Eskine & Locander, 2014; Touré-Tillery & McGill, 2015). It has been speculated that disregard of people's humanness is the flip-side of anthropomorphism (Kwan & Fiske, 2008).

Dehumanization

Just like humanness can be ascribed to non-humans it can be denied to real people (Kwan & Fiske, 2008). Therefore, it is speculated that inversion of anthropomorphism is the *dehumanization*: decreased attribution of humanness to people (Kwan & Fiske, 2008). Research on this topic was initiated by abuse, torture or genocide of individuals during war (Jahoda, 2013). Brutal mistreatment of entire groups of people was frequently rooted in the belief that their physical or cultural differences are in fact reflecting their lack of humanity (Jahoda, 2013; Kohl, 2011). For example, during the Second World War nationalists' propaganda was based on a discourse framing these differences as "us vs them", that is on ingroup and outgroup division (see Figure 3, (Germer, 2013; Jahoda, 2013; Kohl, 2011). Additionally, it was insinuated that non-Caucasians don't have the same "essence" (i.e. a soul) as Caucasians and certain ethnic groups such as Jews were represented in demeaning way like being half-human half-rats (Figure 3, (Jahoda, 2013; Kohl, 2011). These tactics were not existing only during the Second World War, for centuries Black people have been considered as inherently subordinated to White people and likened to apes (Goff, Eberhardt, Williams, & Jackson, 2008). In Western Europe, Russia and Asia, until 1940s-50s exhibition of enslaved people imported from other continents was considered as entertainment and known as the "human zoo"

(Trupp, 2011). Although brutal dehumanization decreased over years and is no longer accepted as entertainment, scholars recognized that subtle forms still exist (Bain, Vaes, & Leyens, 2013; Haslam, 2006).

Figure 3. Examples of propaganda pamphlets during the 2nd World War.



Caption: Does the same soul dwell in these bodies?

Concept of humanness

With the proliferation of research demonstrating subtle, “modern” denial of humanness to others (or to self), it became evident that humanness is a vast, multifaceted concept (Bain et al., 2013). Empirical insights about the structure of this category are still limited, however, scholars propose that humanness encompasses characteristics that are seen as biologically and culturally essentialized (Bain, 2013). As each name suggest, the first one covers an “essence” that is inherent, causal, natural and has informative properties, while the second one includes an “essence” with sorting purposes created by people (Bain, 2013). Following this approach, one model of humanness consists of traits typical to human nature and traits reflecting human uniqueness (Haslam, Loughnan, Kashima, & Bain, 2009). Typically, or naturally human traits such as curiosity, emotional responsiveness, correspond to previously mentioned notion of biological “essence” (Haslam et al., 2009). Traits such as social refinement, sophistication, intelligence, are seen as uniquely human qualities, essentialized through socialization (Haslam et al., 2009). Another model puts forth a similar idea. Instead of uniquely human traits, uniquely human feelings or secondary complex emotions such as pride, sorrow, shame, lay at the core of the implicit theories people hold about humanness (Leyens et al., 2001). It is also argued that the first step to the ascription of humanness is the attribution of a mind

(Epley & Waytz, 2009). A mind enabling agency (i.e. acting upon intentions, beliefs and desires) and permitting experiencing basic and complex sensations (e.g. hunger, emotions) is necessary for recognition of humanness (Gray, Gray, & Wegner, 2007; Waytz, Gray, Epley, & Wegner, 2010). Although it might seem that there is a big discrepancy in understanding what humanness is, these models are not exclusive of each other, and leading experts agree that these differences come from a variety of research approaches and objectives which, taken together, thoroughly map all nuances of this concept (Bain et al., 2013).

Just like anthropomorphism emerges due to activated homocentric pool of knowledge, dehumanization occurs because the concept of humanness is not sufficiently activated (Aggarwal & McGill, 2007; Gervais, Bernard, Klein, & Allen, 2013). Assessing another's humanness is not an easy task, because there is an objective difficulty to know what qualities a person has or what is going on in another person's mind (Gervais et al., 2013). Representations of one's humanness are directly available when a person thinks about her/himself, personal traits or feelings are easily accessible, however when encountering others these cues are not that obvious and might appear vague or abstract (Haslam, Bain, Douge, Lee, & Bastian, 2005; Waytz, Epley, & Cacioppo, 2010).

Triggers of dehumanization.

Previous findings suggest that humanness is less accessible when there are appeals to the intergroup division, or when similarities are drawn between humans and animals and/or non-living things (Gervais et al., 2013). Slower recognition of secondary emotions when they are associated with outgroups compared to ingroups (e.g. people not having vs having the same nationality as a respondent) or denial of human potentials have been directly linked to intergroup context (Kofta et al., 2013; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007). Animalistic dehumanization or likening people to animals leads to decreased attribution of uniquely human traits like civility and likening people to robots, decreases perception of traits considered to represent human nature such as emotionality, or cognitive openness (Martínez, Rodríguez-Bailón, & Moya, 2012). Similarly, marketing animals as human-like might increase concern for exploitation of animal welfare but representing people as animal-like leads to moral disregard and penalization (Bastian, Costello, Loughnan, & Hodson, 2012; Khamitov, Rotman, & Piazza, 2016).

While it is still uncertain whether any advertisement inhibits activation of humanness, many agree that marketers' deliberate representation of others in stereotypical, narrowed, or pejorative manner contribute to this phenomenon (Baker, 2005; Morris, 2013). Qualitative analysis of various magazines noted

that there are discrepancies in representation of men and women: while for men emphasis is on faces, the attention is often on women's bodies (Archer, Iritani, Kimes, & Barrios, 1983). Later, experimental studies confirmed that focus on a body vs a face leads to denial of humanness and person's agency (Gray et al., 2011; Heflick & Goldenberg, 2009). Today, it is well established that blatant sexual objectification of women and men has negative consequences not only for perceived models, but for the perceiver as well, like decreased self-esteem and problems with one's body-image (Fredrickson & Roberts, 1997; Tiggemann & McGill, 2004).

Sociality motivation.

Link between the sociality motivation and the dehumanization is complex. In the aversive situations such as the social exclusion, people often have an impulse to dehumanize (Bastian & Haslam, 2010). When persons feel ignored and socially excluded by others, they perceive the perpetrator as lacking traits such as the emotional responsiveness, that is the human nature (Bastian & Haslam, 2010). Furthermore, if the person is the one ostracising others, she/he will self-dehumanize, and see her/himself as less human compared to the situation that doesn't imply negative interpersonal behaviour such as the social exclusion (Bastian et al., 2013). However sometimes, a reminder of a close social relationship with the significant other (e.g. romantic partner, family

member, friend) might result in dehumanized perception of others that are considered as socially distant (e.g. a member of the same state; (Waytz & Epley, 2012).

Effectance motivation.

Dehumanization is more likely to appear within a set of beliefs reflecting a desire for social hierarchy and social dominance (Dhont, Hodson, & Leite, 2016). Individuals experimentally induced to feel more socially powerful express higher tendency to dehumanize others (Gruenfeld, Inesi, Magee, & Galinsky, 2008; Gwinn, Judd, & Park, 2013; Lammers & Stapel, 2011).

Decreased neural responses of brain regions in charge of social cognition occur when a context implies assignment of economic value to people as in labour market (Harris, Lee, Capestany, & Cohen, 2014). Likewise, when consumers are focused on price and getting the best deal, they might dehumanize and mistreat employees working for low-status corporate brands (Henkel, Boegershausen, Hoegg, Aquino, & Lemmink, 2018). Put differently, heightening the effectance motivation, that is the need to master, predict and control one's environment, leads to the dehumanization of others.

Consequences.

In most cases dehumanized perceptions lead to negative outcomes: anger, negative attitudes, prejudice, more severe punishment, lesser willingness to

reach a consensus, self-dehumanization are just some examples that are frequently registered in this research corpus (Bain et al., 2013; Bastian et al., 2012; Bastian & Haslam, 2011; Boccato, Cortes, Demoulin, & Leyens, 2007; Haslam & Bain, 2007; Loughnan et al., 2010; Vaes, Bain, & Leyens, 2013). Although far from positive, dehumanization might have a protective purpose like in the medical context, or when there is a consciousness of mortality (Goldenberg, Cooper, Heflick, Routledge, & Arndt, 2011). Thinking about person's humanness or capacity to feel pain, is not the best strategy when a doctor is about to cut open their patients and perform surgeries, because it can be distracting and overwhelming. Instead, thinking of the patient as the entity that is supposed to be repaired although reduces mental state inferences to the patient, more importantly, it regulates empathic responses and facilitates successful surgery (Haque & Waytz, 2012). With respect to dehumanization of the other, one study found approaching tendencies toward dehumanized groups, but only if they are perceived as having some sort of an utilitarian or an instrumental value (Martínez, Rodríguez-Bailón, Moya, & Vaes, 2015).

Present research

In sum, anthropomorphism is considered as an “in-built” cognitive bias based on the activation of the homocentric pool of knowledge and it can satisfy important needs such as sociality and effectance motivation (Epley et al., 2007).

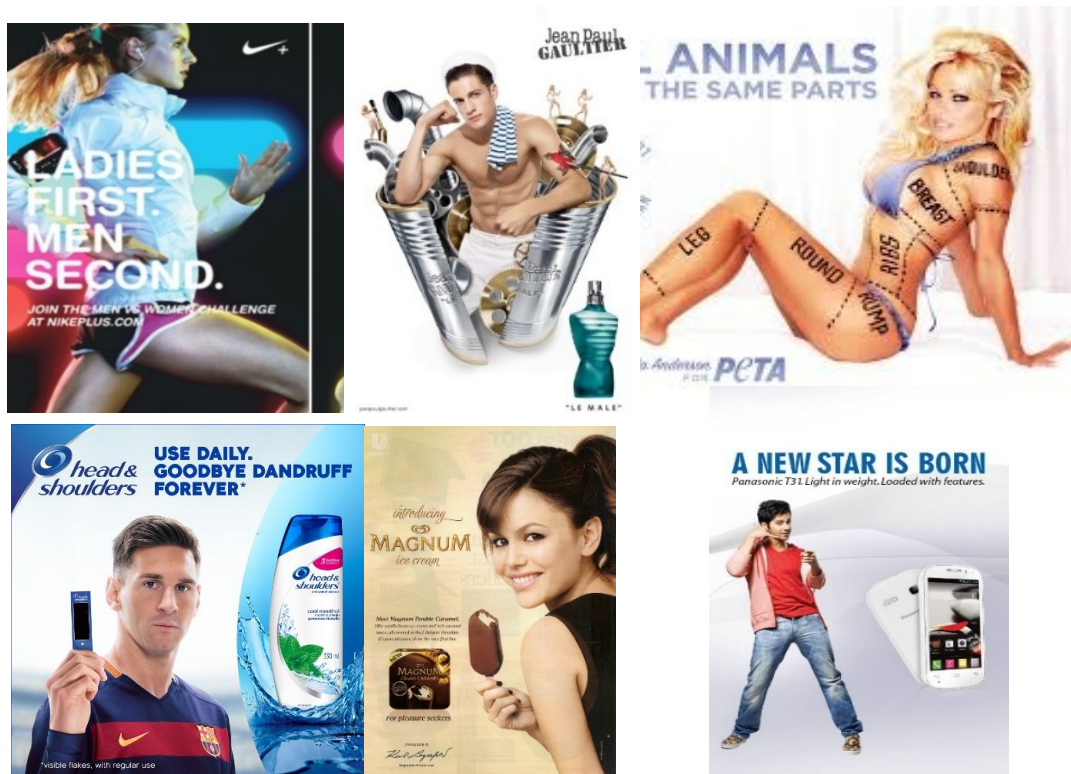
So far researchers identified that anthropomorphism occurs when the entity explicitly evokes humanness either through visual design or through verbal appeals, or when a person is a need for social companionship or an effective interaction with his/her environment (Chen, Wan, & Levy, 2017; MacInnis & Folkes, 2017; Waytz, Gray, et al., 2010). Whether anthropomorphism leads to encouraging outcomes or not depends on circumstances and personal beliefs, however, generally, it is well-received by consumers (MacInnis & Folkes, 2017).

It is speculated that dehumanization is a reverse phenomenon to anthropomorphism since it implies insufficient attribution of humanness to real people (Waytz, Epley, et al., 2010). At the cognitive level it represents an inhibition of humanness which can occur due to explicit appeals to the group belongingness, the comparison of people to animals or machines, when attention is drawn on some parts and not on the entirety of the person or as a result of social exclusion and contexts implying social dominance and manipulation (Bastian et al., 2012; Bastian & Haslam, 2010; Henkel et al., 2018; Vaes, Paladino, & Leyens, 2006). Although it might be adaptive in some circumstances, overlooking aspects of humanness to people has more negative than positive consequences (Bain et al., 2013).

The intersection of anthropomorphism and dehumanization at the empirical level is very limited, and very few studies tried to bridge the gap between these two research streams. For example, one study focused on exploring non-verbal cues necessary for judging a content (i.e. text) as coming from a human (Schroeder & Epley, 2016). Findings suggest that a text read in a humanlike voice is judged as being written by a person, even when it is not the case (Schroeder & Epley, 2016). Conversely, a text generated by a real person appearing only in subtitles is not recognized as coming from a human (Schroeder & Epley, 2016). Others explored how trust in people translates into interaction with anthropomorphic messengers (Touré-Tillery & McGill, 2015). Findings suggest that people who have low trust in humans are more prone to trust anthropomorphic messengers because they are only human-like, not completely human (Touré-Tillery & McGill, 2015).

With this research we try to empirically tie anthropomorphism and dehumanization in a more direct way. Explicit portrayal of products and brands as humanlike and explicit portrayal of people in sexual positions are techniques that are already confirmed as leading to anthropomorphism and dehumanization (Puvia & Vaes, 2013; Triantos, Plakoyiannaki, Outra, & Petridis, 2016). However, a lot of advertisement advertisements simply portray the person alongside the product (see Figure 3).

Figure 3. Examples of advertisements



Note: First three photos are examples of campaigns using inter-group context comparison (Nike Women vs Man running campaign), sexualization and human-animal (PETA) or human-robot likening (Jean-Paul Gautier, The Factory). Last three photos are examples of advertisement that are not explicitly dehumanizing models.

We postulate that anthropomorphism and dehumanization can be achieved even with less explicit techniques: through simple pairing of a non-human entity (i.e. object: product and a brand) and a human (i.e. person: model). Why? Because the homocentric pool of knowledge can be activated for an object through pairing with a person (vs presentation alone). However, this concept is inhibited for the person in the presence of an object (vs presentation of the model alone). By manipulating whether respondents focus on either a product or a person that are presented together (vs alone) we can test whether indeed this subtle manipulation can still provoke both anthropomorphism and dehumanization and consequent reactions. We expect:

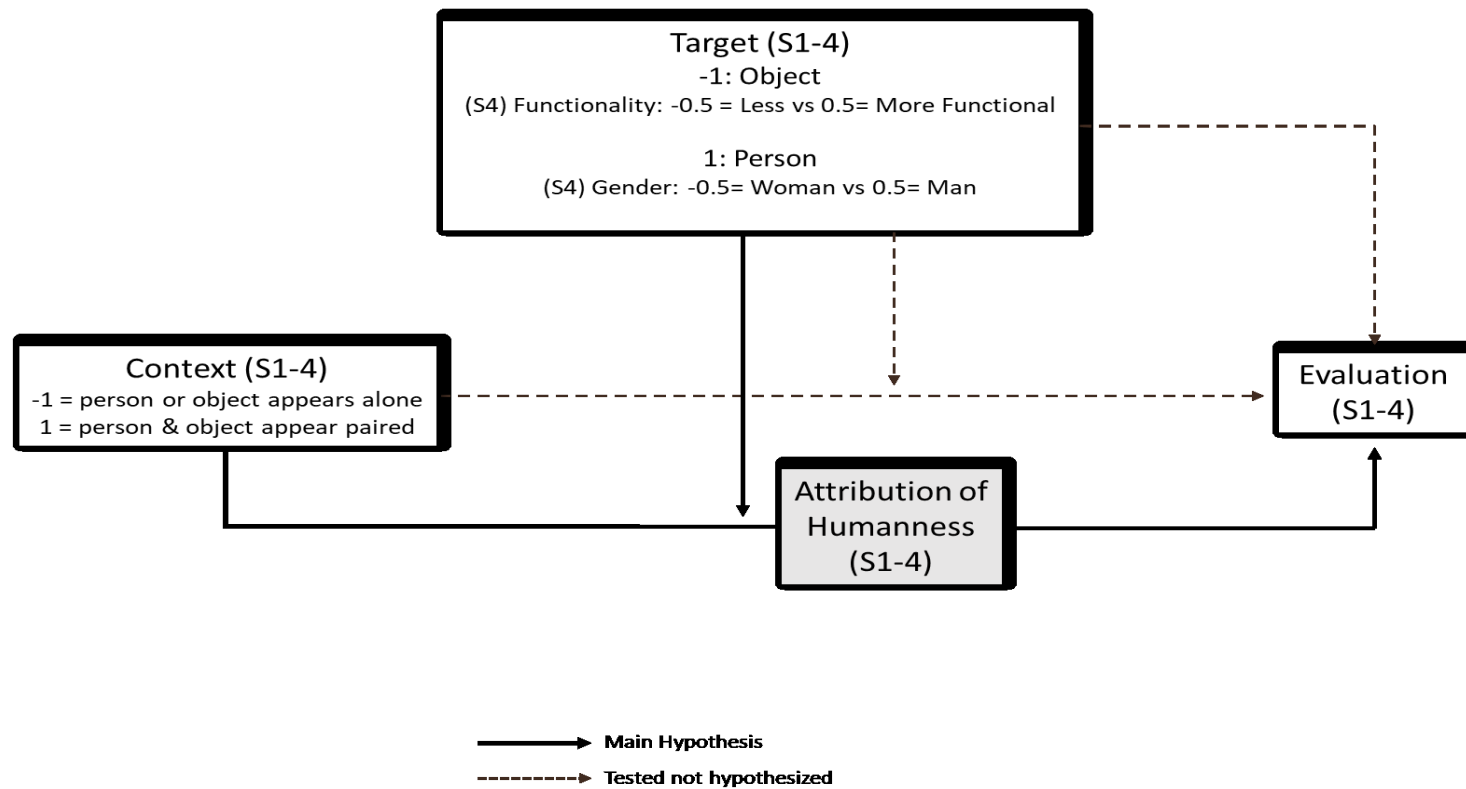
H1: improved evaluations through higher attribution of humanness to a product/brand presented together with a person (vs alone)

H2: decreased attitudes through lower attribution of humanness to a person presented together with an object (vs alone)

In all studies we use a 2 (Target: object vs. model) x 2 (Context: paired vs alone) between subject experimental design. The Target factor implies that participants focused and rated either an object or the person. The Context factor implies that the Target was either presented together with its counterpart or alone (see Figure 4). In a first attempt to empirically link these two research streams, we tested our proposition using an adaptation of actual advertisements

(studies 1 & 2) and a more controlled, created advertisement for an invented brand (study 3 & 4). We also used a variety of products (smartphone, ice cream, cosmetics, pen) and of models (White, Black, women, man)

Figure 4: General model (Model 8, Hayes, 2013)



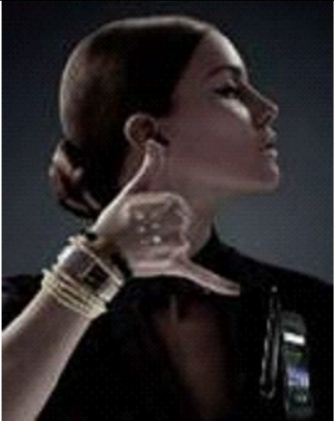
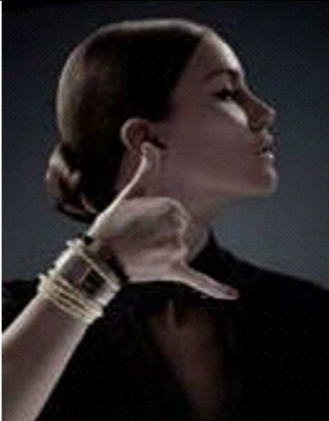
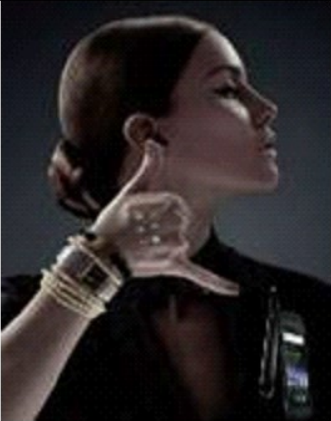
Study 1

Material and Procedure. We adapted an existing advertisement of a smartphone (see Table 1). We operationalized attribution of humanness through two scales in order to encompass the first step toward the recognition of humanity: the mind perception (Epley & Waytz, 2009), and to include a more explicit, propositional form of humanness with the human potentials scale (Kofta et al., 2013). The procedure was set up on Qualtrics. The data collection was introduced as exploring people's impression of commercial communications. Participants were randomly assigned to one of four conditions and exposed to one of three adaptations of the advertisement (Table 1). Depending on the Target factor, roughly half of the participants rated the humanness of the product (product alone and product together conditions) and the other half rated the humanness of the model (person alone and person together conditions). The first exposition of the photo was timed for a minimum of ten seconds. Beyond this, the photo was presented at the top of each subsequent screen with the questions measuring attribution of humanness (7 items adapted from mind perception scale (Waytz et al., 2010.), and 18 items adapted from the human potential scale (Kofta et al., 2013). Item order was randomized. Next, participants were asked to evaluate the photo they had seen by expressing their overall opinion and emotional reaction (e.g. 1 = very

negative to 7 = very positive). Participants were then asked to provide their age, nationality, gender and had an option to leave a comment. To ensure that the items translated into French accurately reflected the English meaning, we recruited four bilingual professors from the first and second authors' home department to verify the translation.

Participants. A total of 167 participants completed the questionnaire ($N_{\text{product.alone}} = 50$, $N_{\text{product.paired}} = 35$, $N_{\text{person.alone}} = 39$, $N_{\text{person.paired}} = 43$; 97 female, mean age $M = 31.64$, $SD = 14.99$). The questionnaire was distributed by management students from Belgian university as part of their master thesis. It was filled by French speaking Belgian adults on voluntary basis.

Table 1: Experimental stimuli, Study 1

Context	Target			
	Object		Person	
	Alone	Paired	Alone	Paired
				

Results

Item analysis. Initially, the factorability of the 25 items was examined on the basis of several well-recognised criteria. Firstly, items correlated at least .3 with at least one other item, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was .96, and Bartlett's test of sphericity was significant ($\chi^2 = 4094.01, p < .001$). Finally, the communalities were all above .5, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was conducted with all 25 items. Relying on a scree plot, a single factor solution was kept with the initial Eigen value (15.78) explaining 63.13% of the variance. Two measures of humanness attribution were highly correlated ($r(167) = .92, p < .001$), thus averaged to create overall indexes for attribution of humanness (AoH, $\alpha = .97$). For the general evaluation, two items were averaged (EVAL $\alpha = .78, r(167) = .64, p < .001$).

We relied on a bootstrapping method (5,000 iterations, 95% confidence intervals (CI)) using SPSS PROCESS macro (Model 8, Hayes, 2013).

Overall interaction was significant ($t(163) = -6.37, p < .01, \beta = -.56, CI = -.74, -.39$) and we confirm our hypothesis. Object is perceived as more human-like when paired with a person than when presented alone ($M_{\text{paired_object}} = 2.96$ vs. $M_{\text{alone_object}} = 1.54, t(163) = 5.67, p < .001; \beta = .71, CI = .46, .96$). The same pairing,

compared to presenting the person alone results in lower perceptions of humanness for the person ($M_{\text{paired_person}} = 3.72$ vs. $M_{\text{alone_person}} = 4.57$, $t(163) = -3.34$, $p < .001$; $\beta = -.42$, $CI = -.67, -.17$).

Moderated Mediation. We find support for moderated mediation as well (Table 2). Compared to an object alone, an ad that incorporates a person improves Eval ($\beta = .21$, $CI = .08, .37$) through increased AoH to the object. Compared to an ad portraying a person alone, a paired ad harms Eval ($\beta = -.12$, $CI = -.23, -.04$) due to lowered AoH to the person. These offer an initial support of the hypotheses.

Table 2. Summary of Moderated Mediation analysis with Indirect and Direct Effects for Studies 1-3.

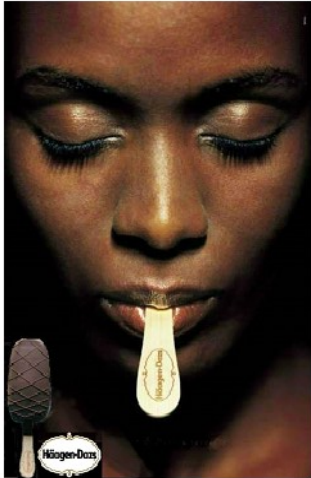
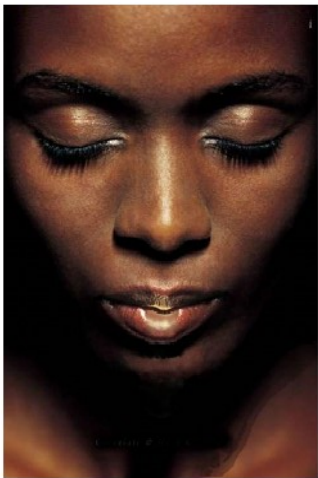
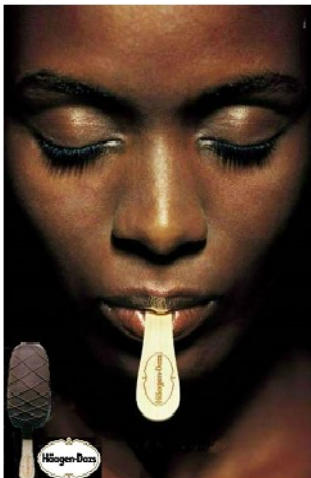
Study	Mediator	DV: Evaluations	Indirect Effect					Index of Moderated Mediation (CI)	Direct Effect			
			Object is Target		Person is Target				Object is Target		Person is Target	
			β	CI	β	CI			β	CI	β	CI
1	AoH	General	.21	.08, .37	-.12	-.23, -.04	-.33 (-.56, -.14)		-.15	-.41, .09	-.17	-.41, .06
2	AoH	General	.36	.12, .63	-.24	-.47, -.05	-.59 (-.97, -.28)		-.16	-.55, .23	-.16	-.42, .10
3a	AoH	Ad	.06	.01, .12	-.18	-.31, -.08	-.25 (-.41, -.13)		.20	.01, .39	.03	-.17, .24
		Target	.08	.02, .16	-.23	-.36, -.11	-.31 (-.47, -.17)		.03	-.15, .20	-.02	-.21, .17
3b	AoH	General	0.15	.03, .27	-.20	-.33, -.10	-.20 (-.54, -.20)		.05	-.14, .25	-.14	-.33, .06

Note: Positive numbers indicate an increase from alone to paired condition, and negative numbers indicate a decrease from alone to paired condition. Bolded numbers are statistically significant, that is, with 95% confidence intervals do not contain zero (Hayes, 2009).

Study 2

In Study 2 we replicate and extend the findings of previous study. We test whether these effects are found when the target of evaluation is a brand. We also change the model's skin tone (Black) and the product category (food, see Table 3). Our hypotheses and the procedure remained the same.

Table 3. Experimental stimuli: Study 2

Context	Target			
	Object		Person	
	Alone	Paired	Alone	Paired
				

Participants. In total 97 participants (64 female, mean age $M = 26.86$, $SD = 13.99$) were retained for the analysis. Hundred twenty four were dropped due to excessive ($< 50\%$) data missing. Majority of these (non)participants dropped before the random assignment to conditions just after reading the introduction to the study ($N_{\text{before_assignment}} = 72$; there were no significant differences in proportion of drop-outs from conditions $\chi^2(1, N = 52) = 2.14$, $p = .14$). All respondents were recruited by LSM master students for course credits and filled online questionnaire. They were all French speaking Belgian adults recruited on a voluntary basis.

Results

Item analysis. As previously we examine the underlying factor structure. Again, items correlated at least .3 with at least one other item, the Kaiser-Meyer-Olkin measure of sampling adequacy was .93, and Bartlett's test of sphericity was significant ($\chi^2 = 2411.32$, $p < .001$) and communalities were above .4. Scree plot again suggested a single factor solution, with the initial Eigen value (15.14) explaining 60.57% of the variance. Two measures of humanness attribution were highly correlated ($r(97) = .93$, $p < .001$), thus averaged to create overall indexes for AoH ($\alpha = .97$). For the EVAL, two items were averaged ($r(97) = .74$, $p < .001$).

We used SPSS PROCESS macro (5000 iterations, 95% BCI, Model 8, Hayes, 2013). The overall interaction was significant ($t(93) = -3.31$ $p < .001$; $\beta = -.42$, $CI = [-.67, -.17]$; $\eta_p^2 = .10$) and we confirm our hypothesis. Object is perceived as more human-like when paired with a person than when presented alone ($M_{\text{paired_object}} = 3.62$ vs. $M_{\text{alone_object}} = 2.62$, $t(93) = 2.80$, $p = .01$; $\beta = .22$, $CI = [.18, .45]$). The same pairing, compared to presenting the person alone results in lower perceptions of humanness for the person ($M_{\text{paired_person}} = 4.58$ vs. $M_{\text{alone_person}} = 5.27$, $t(93) = -3.31$ $p = .02$; $\beta = -.34$, $CI = [-.63, -.06]$).

Moderated Mediation. We find support for moderated mediation as well (Table 2). Compared to an object alone, an ad that incorporates a person improves Eval ($\beta = .36$, $CI = [.13, .63]$) through increased AoH to the object. Compared to an ad portraying a person alone, a paired ad harms Eval ($\beta = -.24$, $CI = [-.47, -.05]$) due to lowered AoH to the person.

Discussion. These results replicated and extended the results of Study 1. For the paired conditions combining a brand and a model we observed an anthropomorphism and increased evaluation of the brand and dehumanization and drop in evaluations of the model. This was found for a different type of object-brand, a different model-Black and a different product category-food.

Study 3a

Studies 1 and 2 had the ecological validity of using adaptations of actual advertisements. But this also came with a number of limitations that we address in this third study. In the first two studies, the paired conditions presented the model merged with the object. This merging of the model and the product could be a major limitation of the generalizability of the results. Besides, the study 2 presented a known brand which potentially facilitated brand anthropomorphism and made it hard to control for a priori perceptions beyond random assignment to the experimental conditions. Additionally, effective number of participants was low.

We created an advertisement of a fictional brand (Table 4). We also moved to a third product category (cosmetics). In paired conditions the model and the object are presented side by side. In the brand solo condition, instead of cropping out the model, we replaced the model with an object of similar size and style in order to keep composition constant. Finally, in order to avoid misunderstanding of the general evaluation measure, we asked participants to provide separate evaluations of the target (brand or model) and of the advertisement.

Table 4: Experimental stimuli, Study 3a & 3b

Context	Target			
	Object		Person	
	Alone	Paired	Alone	Paired
				

Method and procedure. Since we included additional measures, we shortened the questionnaire, and kept only the 7-items scale of AoH (Waytz et al., 2010). Participants were instructed to make the distinction between the global photo and its components and provide their opinion (favorable, positive, agreeable) separately for the Target (EVALTARGET) and for the photo (EVALAD).

Participants. After excluding 27 respondents who did not finish the questionnaire ($N_{\text{before_random_assignment}}=14$, there were no significant differences in proportion of drop-outs from conditions $\chi^2(1, N=13) = .78, p = .38$), we were left with the sample of 290 participants (112 female, $M_{\text{age}} = 21.27$, $SD = 1.85$). All respondents were undergraduate students at a European university.

Results

Item analysis. All scales were reliable AoH ($\alpha = .86$), EVALTARGET ($\alpha_{\text{brand}} = .82$ and $\alpha_{\text{model}} = .87$) and EVALAD ($\alpha = .89$).

We used SPSS PROCESS macro (5000 iterations, 95% BCI, Model 8, Hayes, 2013). Overall interaction was significant ($t(286) = -4.99, p < .01, \beta = -.33, CI = -.46, -.20$). As hypothesized object is perceived as more human-like when paired with a person than when presented alone ($M_{\text{paired_object}} = 3.48$ vs. $M_{\text{alone_object}} = 3.15, t(286) = 1.97, p = .05; \beta = .18, CI = .001, .36$). The same pairing, compared to presenting the person alone results in lower perceptions of

humanness for the person ($M_{\text{paired_person}} = 4.01$ vs. $M_{\text{alone_person}} = 4.97$, $t(286) = -5.06$, $p < .01$; $\beta = -.48$, $CI = -.67, -.29$).

Moderated Mediation. We find support for moderated mediation as well (Table 2). Compared to an object alone, an ad that incorporates a person improves evaluations ($EVAL_{\text{TARGET}} \beta = .08$, $CI = .02, .16$ and $EVAL_{\text{AD}} \beta = .06$, $CI = .01, .12$) through increased AoH to the object. Compared to an ad portraying a person alone, a paired ad decreases evaluation ($EVAL_{\text{TARGET}} \beta = -.23$, $CI = -.36, -.11$ and $EVAL_{\text{AD}} \beta = -.18$, $CI = -.31, -.08$) due to lowered AoH to the person.

Discussion. These results replicate and extend those found in studies 1 and 2. Again we find that pairing a brand with a model anthropomorphizes the brand and dehumanizes the model. This is found even though we used fictional brand and presented the product next to the model. Evaluations of the advertisement and of the target were increase after brand anthropomorphism. We find lower evaluations of the photo and of the target of the person paired with object compared to the presentation of the person alone through decreased attribution of humanness. Although encouraging, these studies have an important limitation. It could be argued that there is a demand effect because respondents assessed AoH before evaluations, a design that could have

heightened the salience of humanness. Thus, in remaining studies, we assess evaluations immediately after respondents view the stimulus.

Study 3b

Material and Procedure. We keep the same stimuli and the same scale of AoH as previously (Table 4). To assess the attitude, we expanded the measure of evaluations to a 5 items bi-polar scale (Unappealing-Appealing, Bad-Good, Unpleasant-Pleasant, Unfavorable-Favorable and Unlikeable-Likeable, (Spears & Singh, 2004). We first ask participants to provide their overall evaluations and then to judge the humanness of the Target. Everything else remained the same as in Study 3a.

Participants. Participants were English speaking recruited with Prolific Academic and remunerated for their participation. After excluding 6 respondents who did not finish the questionnaire (there were no significant differences in proportion of drop-outs from conditions $\chi^2(1, N=6) = 0, p=.1$), we were left with the sample of 304 participants (152 female, $M_{age} = 32.49$, $SD = 10.85$).

Results

Item Analysis. All scales were reliable AoH ($\alpha = .95$), EVAL ($\alpha = .94$).

We used SPSS PROCESS macro (5000 iterations, 95% BCI, Model 8, Hayes, 2013). As previously, overall interaction was significant ($t(300) = -4.41$,

$p < .01$, $\beta = -.35$, $CI = -.50, -.20$). We find that object is perceived as more human-like when paired with a person than when presented alone ($M_{\text{paired_object}} = 3.16$ vs. $M_{\text{alone_object}} = 2.58$, $t(300) = 2.59$, $p = .01$; $\beta = .29$, $CI = .07, .51$). The same pairing, compared to presenting the person alone results in lower perceptions of humanness for the person ($M_{\text{paired_person}} = 3.93$ vs. $M_{\text{alone_person}} = 4.47$, $t(300) = -3.64$, $p < .001$; $\beta = -.41$, $CI = -.63, -.18$).

Moderated Mediation We find support for moderated mediation (Table 2). Compared to an object alone, an ad that incorporates a person improves evaluations (EVAL $\beta = .15$, $CI = .03, .27$) through increased AoH to the object. Compared to an ad portraying a person alone, a paired ad decreases evaluation (EVAL $\beta = -.20$, $CI = -.33, -.10$) due to lowered AoH to the person.

Discussion. So far, we find that pairing an object (a product and a brand) with a model comparing to an ad with an object alone leads to anthropomorphism and improves evaluations. Moreover, we find that this pairing compared to presenting a model alone leads to dehumanization and decreased evaluations. We replicate these findings across four experiments: when the manipulation of anthropomorphism and of dehumanization is not entirely subtle (Study 1 & 2), when product and person are clearly separated (Study 3a) and when procedure decreases demand effect (Study 3b). All studies thus far have employed female models, begging the question of whether the

results extend to male models. Prior literature on humanization suggests gender may play a role, women are sometimes more easily dehumanized than men (K. Gray et al., 2011; Heflick, Goldenberg, Cooper, & Puvia, 2011). Examining gender helps to extend the generalizability of our results. Thus, we created two sets of ads that in the person conditions either showed a man or a woman.

Similarly, qualities of the object may impact attributions of humanness.

Previous research shows that objects that are viewed as inherently more agentic such as robots may be more readily anthropomorphized than objects such as rocks (Gray et al., 2007; Guthrie, 1995). Likewise, research showed that complexity of the product plays a role, toothbrush is more difficult to anthropomorphise than a gadget (Hart, Jones, & Royne, 2013). Although we replicate our findings across different categories of products (electronics, food, cosmetics), variations between them are big and we do not directly test and manipulate one dimension/quality of the object. Thus, we examine the object's 'functionality' as a moderator of the mediated pathway.

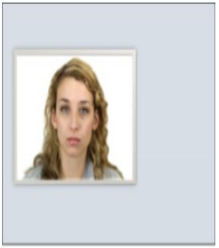
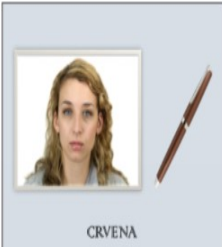
Study 4

Material and Procedure. In terms of our general design, we included the extended measure of humanness as in first two studies, expanded measures of Eval_{TARGET} and Eval_{AD} (Spears & Singh, 2004) and conducted the study in English with Prolific Academic panelists in exchange for a nominal fee as in

Study 3b. For stimuli, we created ads, used a new fictional brand, and selected images of models who were rated as equally attractive (M 's = 4.66) in the Chicago Face Database (Version 2.0.3, 2016). For objects we used the sample from the same panel as for the study ($n = 50$). We pretested several objects differing in functionality operationalized through a 5-item measure (e.g. practical, useful, creative; α 's = .78 - .86) and selected a popsicle as the less functional object ($M = 2.89$) and a pen as the more functional object ($M = 6.34$; $p < .01$). Stimuli are presented in Table 5. Finally, we included two attention checks within the instrument (e.g. "If you are reading this question, please select 'not at all'").

Participants. We excluded data for 126 respondents for failing attention checks (there were no significant differences in proportion of drop-outs from conditions $\chi^2(3, N=126) = 3.35, p = .34$) and remained with 565 participants (47% female, $M_{\text{age}} = 31.2$) equally distributed across conditions.

Table 5. Stimuli for the Study 4

		Target			
		Object Functionality Less (Popside) vs More (Pen)		Person's Gender: Woman vs Man	
Context	Alone	Paired		Alone	Paired
					
					

Note: The faces used in Study 4 (man vs. woman) originate from the Chicago Face Database (version 2.0.3, July 2016) and were selected because that database reports they were independently rated as equally attractive ($M_m = 4.66$; $M_w = 4.66$).

Results

Item Analysis. As previously we examine the underlying factor structure. Again, items correlated at least .3 with at least one other item, the Kaiser-Meyer-Olkin measure of sampling adequacy was .97, and Bartlett's test of sphericity was significant ($\chi^2 = 19723.27, p < .001$) and communalities were above .6. Scree plot again suggested a single factor solution, with the initial Eigen value (18.43) explaining 73.75% of the variance. Two measures of humanness attribution were highly correlated ($r(585) = .83, p < .001$), thus averaged to create overall indexes for AoH ($\alpha = .97$).

We used SPSS PROCESS macro (5000 iterations, 95% BCI, Model 8, Hayes, 2013) and specified contrast such that we were able to test moderation by the type of the object and moderation by the person's gender (SPSS syntax is available in the Appendix B).

Overall interaction was significant ($t(557) = -4.27, p < .01; \beta = -.48, CI = -.69, -.26$). When a highly functional object (pen) is portrayed with a person, AoH is higher: it is viewed as more human-like than when presented alone ($M_{\text{paired_hf_object}} = 2.12$ vs $M_{\text{alone_hf_object}} = 1.52, t(557) = 2.61, p = .01; \beta = .29, CI = .07, .52$). However, presenting an object low in functionality (popsicle) with or without a person doesn't change its perceived humanness ($M_{\text{paired_lf_object}} = 1.72$ vs. $M_{\text{alone_lf_object}} = 1.68, p = .85$). Moderation by object's functionality was not

significant ($t(557)= 1.73, p=.08$).

Further, when a woman is paired with an object AoH scores are lower, she is perceived as less human than when portrayed alone ($M_{\text{paired_w_person}}= 4.36$ vs. $M_{\text{alone_w_person}}= 4.81, t(557)= -1.91, p=.05; \beta= -.21, CI= -.42, -.001$). Likewise, pairing a man with an object compared to presentation of the man alone decreases AoH ($M_{\text{paired_m_person}}= 3.95$ vs. $M_{\text{alone_m_person}}= 4.81, t(557)= -3.86, p<.001; \beta= -.43, CI= -.64, -.21$). Moderation by gender of the target was not significant ($t(557)= 1.38, p=.16$).

Mediated Moderation. We find support for the overall moderated mediation (Table 6). With the more functional pen, we replicate indirect effects for both $Eval_{AD}$ ($\beta= .06, CI= .02, .12$) and $Eval_{TARGET}$ ($\beta= .08, CI= .03, .15$). However, with the less functional popsicle, neither indirect effect is significant ($Eval_{AD} \beta= .01, CI= -.04, .05; Eval_{TARGET} \beta= .01, CI= -.06, .07$). The manipulation failed to produce an anthropomorphism effect for the less functional object that would lead to increased evaluations. Further, we find negative indirect effects for both women ($Eval_{AD} \beta= -.04, CI= -.09, -.01; Eval_{TARGET} \beta= -.05, CI= -.13, -.01$) and men ($Eval_{AD} \beta= -.08, CI= -.14, -.03; Eval_{TARGET} \beta= -.12, CI= -.20, -.06$), suggesting that dehumanization of both models leads to lower evaluations to equal extent (Table 6).

Table 6. Summary of Indirect and Direct effects for the Study 4.

Study	Mediator	DV: Evaluations	Indirect Effect							
			Less Functional Object is Target (Popsicle)		More Functional Object is Target (Pen)		Woman is Target		Man is Target	
			β	CI	β	CI	β	CI	β	CI
4	AoH	Ad	.01	-.05, .06	.08	.03, .14	-.05	-.12, -.01	-.11	-.19, -.05
		Target	.01	-.07, .08	.09	.04, .17	-.07	-.15, -.01	-.14	-.23, -.07
		Direct Effect								
		β	CI	β	CI	β	CI	β	CI	
		Ad	-.43	-.66, -.19	-.18	-.42, .06	-.21	-.44, .02	-.09	-.32, .13
		Target	-.90	-1.14, -.66	-.24	-.48, .01	-.24	-.48, -.01	-.19	-.43, .04
		Indexes of Moderated Mediation (IMM)								
		IMM (Moderation by functionality)		IMM (Moderation by gender)		IMM				
		β	CI	β	CI	β	CI	β	CI	
		Ad	-.07	-.16, .01	.06	-.02, .15			-.13	-.20, -.06
		Target	-.09	-.20, .01	.07	-.03, .18			-.16	-.24, -.08

Note: Positive numbers indicate an increase from alone to paired condition, and negative numbers indicate a decrease from alone to paired condition. Bolded numbers are statistically significant, that is, 95% confidence intervals of effects do not contain zero (Hayes, 2009).

Study 5

Study 5 was set up to test whether activation-inhibition of humanness underpin anthropomorphism and dehumanization effects found in our studies. If that is the case, then already dehumanized model (i.e. sexually portrayed) should not be able to activate homocentric pool of knowledge and lead to anthropomorphism of the brand or get more dehumanized by a presence of the object.

Material and Procedure. We adapted an existing advertisement of a beer (see Table 7) in which the model was highly sexualized. The procedure was the same as in Studies 1-3a.

Participants. We had a sample of 93 participants (42 female, $M_{\text{age}} = 27.52$, $SD = 8.74$), equally distributed across conditions. All respondents were undergraduate students at a European university.

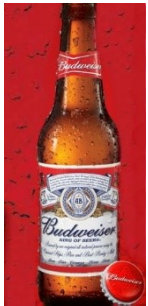
Results

Item analysis. As previously we examine the underlying factor structure. Again, items correlated at least .3 with at least one other item, the Kaiser-Meyer-Olkin measure of sampling adequacy was .90, and Bartlett's test of sphericity was significant ($\chi^2 = 1872.51$, $p < .001$) and communalities were above .5. Scree plot again suggested a single factor solution, with the initial Eigen value (13.38) explaining 53.52% of the variance. Two measures of

humanness attribution were highly correlated ($r(93) = .91, p < .001$), thus averaged to create overall indexes for AoH ($\alpha = .96$).

We conduct the same analysis as before (Hayes, 2013). The Target x Context interaction was below significance level ($t(89) = -.15, p = .88, \beta = -.02, CI = -.28, .24$) suggesting that indeed already dehumanized model cannot activate humanness and lead to anthropomorphism of the object, or suffer from further dehumanization because of the presence of the object (see Table 7 for Means and SDs).

Table 7. Stimuli with associated means (M) and standard deviations (SD).

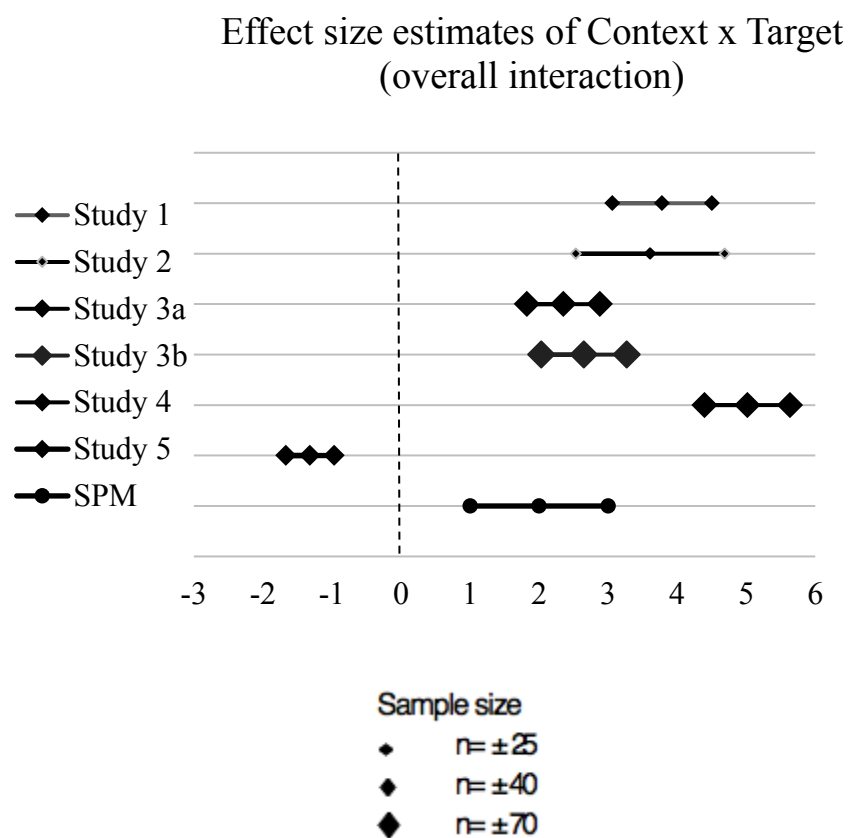
Target				
Object		Person		
Context	Alone (<i>M</i> =3.28, <i>SD</i> =1.28)	Paired (<i>M</i> =3.07, <i>SD</i> =1.21)	Alone (<i>M</i> =3.99, <i>SD</i> =1.22)	Paired (<i>M</i> =3.68, <i>SD</i> =1.25)
				

Single Paper Meta-analysis (SPM)

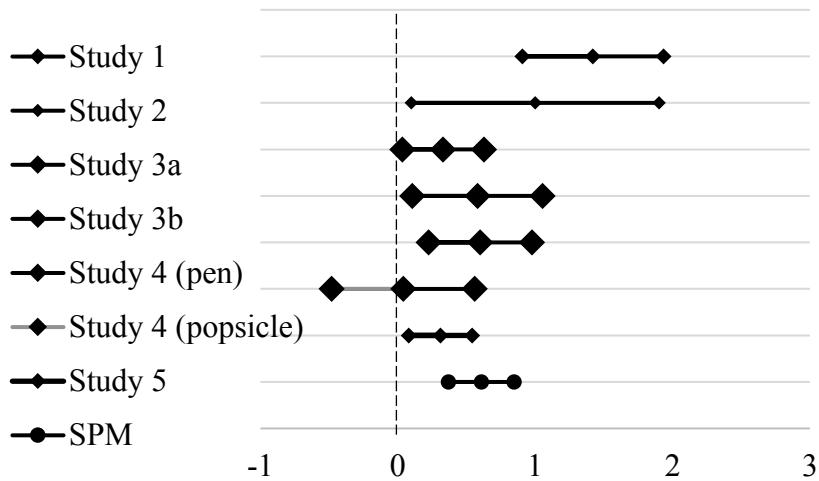
Meta-analysis allows one to summarize findings by calculating overall effect size estimate with more accurate confidence intervals, especially when the studies follow similar design (McShane & Böckenholt, 2017) and the effect size is small (Goh, Hall and Rosenthal, 2016). We conducted a meta-analysis across five studies using a statistical tool for single –paper meta-analyses developed by McShane and Böckenholt (2016). They use a multilevel multivariate meta-analysis methodology that among other improvements allows to test an arbitrary number of study conditions that result from experimental manipulation and give rise to multiple dependent effects of interest, allowing us to test not only overall interaction effect but simple effects at the same time (McShane & Böckenholt, 2018). The meta-analysis revealed that, across all four studies there is a significant interaction effect (Contrast Estimate= 3.07, SE=0.49; $z= 6.16$, $p<.01$). Consistent with our hypothesis for anthropomorphism, simple effects (i.e. object alone vs object paired) were significant (Contrast Estimate=0.61, SE=0.36; $z= 1.72$, $p=.02$). Consistent with our dehumanization hypothesis, simple effects (i.e. person alone vs person paired) were significant (Contrast Estimate= - 0.60, SE=0.35; $z=-1.70$, $p< .01$).

Overall, the single-paper meta-analysis supports the existence of overall interaction, as well as simple effects (Figure 5).

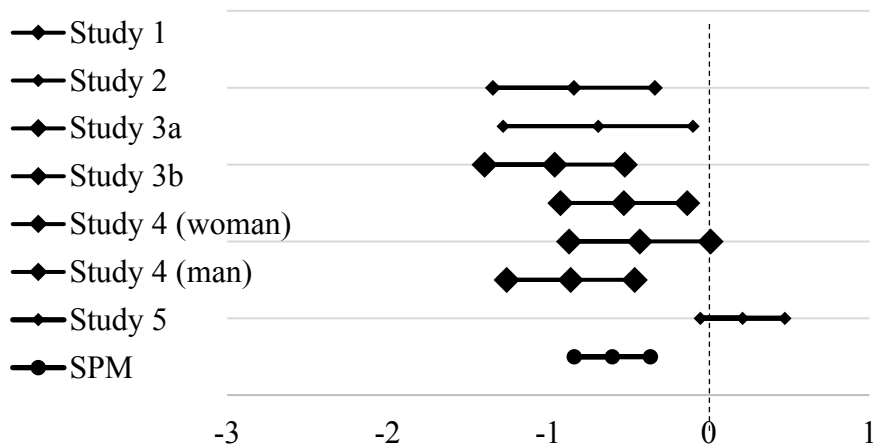
Figure 5. Single-paper meta-analysis of interaction and simple effects on attribution of humanness



Effect size estimates of Anthropomorphism (simple effects)



Effect size estimates of Dehumanization (simple effects)



Note: Effect size estimates are represented by the diamond sign for single study estimates and the circle for single paper meta-analysis (SPM) estimates; 80% intervals are represented by the length of the lines (Mcshane & Böckenholt, 2017)

Discussion

We proposed that the coupling of a brand/product with a model can lead to anthropomorphism and dehumanization effects. In study 1, we find that anthropomorphism of tangible object (functional product-smartphone) occurs when it is coupled with a model compared to its presentation alone. In studies 2 and 3 we find that intangible objects (brands) can also be anthropomorphized when presented with a person. Moreover, brand anthropomorphism occurred for existing (study 2) or fictional brands (study 3 and 4). We found a boundary to our subtle manipulation. For a low functional object such as a popsicle, the mere presence of the person is not enough to anthropomorphise it. As suggested by Study 2, in this case a more direct contact with a person is necessary. We also find that a person presented in a sexualized way also is incapable of anthropomorphizing the proximate object (Study 5).

We find that regardless of the type of the object that is presented with the person, dehumanization occurs. Pairing an object with a person compared to a presentation of the person alone undermines the model's perceived humanness leading to decreased evaluations. We find dehumanization regardless of the person's skin colour or gender. However, a person already depicted in

sexualized way is not prone to further dehumanization. Results suggest that the dehumanization effect we find is not likely to occur due to participants' perception of the model as an out-group vs in-group (Leyens et al., 2001). In order to exclude this possibility, that our results are due to participants' bias toward the model, we explored analysis with the Gender as a between subject factor. Although Gender sometimes had a significant effect on attribution of humanness (Study 4: female compared to male participants gave higher humanness scores $t(541) = -4.01, p < .001; \beta = -.47, CI = -.69, -.24$), it did not alter the reported findings in any substantial way. The Context X Target interaction always remained significant even when Gender was included in the analysis (Study 1: $t(159) = -5.95, p < .001; \beta = -.54, CI = -.72, -.36$; Study 2: $t(89) = -3.3, p < .01; \beta = -.74, CI = -.75, -.19$; Study 3a: $t(282) = -5.03, p < .001; \beta = -.33, CI = -.46, -.20$; Study 3b: $t(296) = -4.4, p < .001; \beta = -.35, CI = -.50, -.19$; Study 4: $t(541) = -4.01, p < .001; \beta = -.47, CI = -.69, -.24$).

We also conducted a single-paper meta-analysis to circumscribe the overall effect size estimation. Although the effect size estimate is rather small, our studies are encouraging and present first steps toward empirical integration

of anthropomorphism and dehumanization. They support the view that these phenomena can occur in a more subtle setting than previously explored.

Limitations and future research

Overall initial findings suggest that anthropomorphism and dehumanization can be achieved through less explicit techniques: a mere presence of a person (object) can lead to an increased (decreased) attribution of humanness. Although encouraging, our studies have limitations. We do not address the nature or the configuration of the relationship between these two phenomena in a direct way. Previous theoretical overview suggests the activation and the inhibition of humanness as underlying mechanisms.

Displaying a person next to the object can ease the activation of the homocentric pool of knowledge and lead to the anthropomorphism. Conversely, the presence of an object next to the person can constrain full activation of the humanness for the person leading to dehumanization. While we find some support of this hypothesis in Study 5, other mechanisms are also possible. A person can transfer qualities to the object and the object can transfer qualities to the person making her/him less humanlike as insinuated by contamination (e.g. Nemeroff & Rozin, 1989). We left these questions for future research.

In these studies, we only focused on consumers' attitudes toward the product or a brand. Future research needs to address more behaviorally oriented measures or proxies, with word of mouth as the most interesting one. For example, it would be very intriguing to see in which of these scenarios (anthropomorphized brand/dehumanized model) would people be more willing to comment and share the advertisement and how would they react upon those requests.

Regarding practical implications of our studies, one way to overcome these negative consequences could be seen in media literacy campaigns. This practice has been used for raising awareness about potential detrimental effects of advertisements relying on narrowed gender and sexual stereotyping (Reichert, LaTour, Lambiase, & Adkins, 2007). It has been showed that female public at least, reacts positively toward these campaigns (Reichert et al., 2007). Hence, it can be used as a tool for raising awareness regarding potential dehumanizing perceptions in advertisements that couple an object (product/brand) with a person. Moreover, given that humanness is a concept that encompasses each and every individual, potentially positive reactions of these campaigns could be elicited from a wider public (Reichert et al., 2007).

However, rather to say that use of human(ne)s as promotional tool is inherently good or bad, our own view is that making non- human objects appear humanlike and vice versa can be double-edged sword- benefiting and/or harming depending on the placed focus (i.e. target in question). Our studies showed that both of these outcomes are possible: appraisal due to anthropomorphism but also downgrade due to its flipside – dehumanization.

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Appendix A:

Attribution of Humanness and Evaluation Measures

Directions:	To what extent does this product [brand, person] seem to: <i>(anchored by 1 = not at all, 7 very much)</i>	Dans quelle mesure diriez-vous que cette marque/personne semble : <i>(anchored by 1 = pas de tout, 7 = tout à fait)</i>
Scale:	Original English Item:	French Item:
	have a mind of its own	avoir son propre esprit
Mind	have intentions	avoir ses propres intentions
Perception	have a free-will	disposer d'un libre arbitre
Waytz et al., 2010)	have a consciousness	avoir une conscience
Study 1, 2,	have desires	avoir des désirs
3, 4, 5	have beliefs	avoir des croyances
	have the ability to experience emotions	avoir la capacité d'éprouver des émotions

Note: Studies 1, 2 and 5 were conducted in French and Study 3 and 4 in English. The two items for Eval (all studies) were Veuillez indiquer (please indicate): (1) “Votre opinion general quant à la photo que vous avez vu” [“regarding the photo you have seen, to what extent is your general opinion...”] and (2) “Votre réaction emotionnelle quant à la photo que vous avez vu” [“regarding the photo you have seen, to what extent is your emotional reaction...”]. In French, items were anchored by 1 = Très négatif/ve, 7 = Très positif/ve. In English, items were anchored by 1 = negative, 7 = positive. In Study 3a, the three items assessing the target and the photo were “” (favorable, positive, agréable) anchored by 1 = pas de tout, 7 = tout à fait. In Study 3b and 4 we used the 5-items bipolar scale (Spears & Singh, 2004) To ensure that the items translated into French accurately reflected the English meaning, we recruited four bilingual professors from the first and second authors’ home department to verify the translation.

	Original English Item:	French Item:
Human Potential Kofta et al. 2013 Study 1, 2, 4,5	strive to understand the world	faire des efforts pour comprendre le monde
	be able to consider things that could have happened	être capable de prendre en compte des choses qui auraient pu arriver
	use abstract terms	utiliser des termes abstraits
	be able to imagine things that have never existed	être capable d'imaginer des choses qui n'ont jamais existé
	be able to give arguments for and against his/her decisions	être capable de donner des arguments pour et contre ses décisions
	be able to think about his/her life	être capable de penser à sa vie
	have a rich inner life	posséder une vie intérieure riche
	strive to make his/her life meaningful	faire des efforts pour donner un sens à sa vie
	be aware of his/her mortality	être conscient(e) de sa mortalité
	be able to imagine his/her own future	être capable d'imaginer son avenir
	want to be remembered by posterity	veut être retenue par la postérité
	celebrate anniversaries of events that were important to him/her	Être capable de célébrer des événements important pour lui/elle
	believes in spirituality	croire à la spiritualité
	have the ability to believe in religion	avoir la capacité de croire en une religion
	feel the need to commune with art	avoir besoin d'interagir avec l'art
	desire freedom of speech	désirer avoir une liberté de parole
	desire freedom of beliefs	désirer avoir une liberté de croyance
	commemorate important events / persons	Être capable de commémorer les événements/personnes importants

Appendix B

Model 8 PROCESS Syntax for Study 4

PROCESS allows users specifications of customized contrasts through command `mcw=5`.

The independent variable Context (x), is always coded the same (-1= alone vs 1= paired).

The dependent variables are $Eval_{AD}$ and $Eval_{TARGET}$, (y) and the mediator is AoH (m),

Using this command, we could simultaneously test whether the moderation by the type of Target occurred, and if yes, where (i.e. between what specific levels of the Target factor?):

1. the first column of contrasts (-0.5, -0.5, 0.5, 0.5) specifies two levels of the Target factor (i.e. -1= object vs 1= person);
2. the second column (-0.5, 0.5, 0, 0) specifies moderation by the type of the object (i.e. -.05 less functional, .05 more functional)
3. the third (0, 0, 0.5, -0.5) specifies moderation by the person's fame (i.e. -.05 generic, .05 celebrity)

Template for SPSS Syntax:

PROCESS

y=DV

/x=Context

/w=Target

/m=AoH

/mcw=5

/wcatcode= -0.5, -0.5, 0,
 -0.5, 0.5, 0,
 0.5, 0, 0.5,
 0.5, 0, -0.5

/plot=1

/decimals=F10.4

/effsize=1

/boot=5000

/conf=95

/model=8.

Essay 2:

Pairing People with Products: Anthropomorphizing the Object, Dehumanizing the Person

Note : this essay is co-written as first author by doctoral candidate, in collaboration with Nicolas Kervyn (Université catholique de Louvain, Louvain Research Institute in Management and Organizations-LouRiM) and Matthew Thomson (Western University, Ivey Business school)

An earlier version of this essay has been presented at Colloque Jeunes Chercheurs hosted by Université Paris-Ouest Nanterre, 28-30 June, 2017

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Abstract

We present the first empirical integration of anthropomorphism and dehumanization, two intrinsically linked processes representing the extent to which the concept of humanness is activated for a given target. Across several experiments, we demonstrate that pairing a person and object in an ad while focusing respondent attention on the *object*, leads to its being anthropomorphized and evaluated better compared to presenting it alone. However, the same pairing, while focusing respondent attention on the *person*, leads to inferior evaluations through a process of dehumanization compared presenting the model alone. We rule out two alternative explanations for these effects, namely the transfer of an object's qualities to the person and consumption associations, and conduct a post-test that provides additional support for our proposed activation/inhibition of humanness account. Finally, we inspect several moderators, finding that anthropomorphism only occurs with moderately and highly functional objects and that dehumanization occurs irrespective of the person's gender or fame. By incorporating the literature on dehumanization, we propose new research questions to motivate future inquiry.

Keywords: anthropomorphism, dehumanization, branding

Introduction

Marketing research recommends that managers anthropomorphize products and brands (e.g. Bonchek & France, 2016; Kervyn, Fiske & Malone, 2012) because the tactic often improves consumers' evaluative responses (MacInnis & Folkes, 2017). Recently, there has been a turn to understanding the negative effects of anthropomorphism. For example, anthropomorphized brands can suffer disproportionately when they fail (Puzakova, Kwak & Rocereto, 2013) and anthropomorphized products can harm consumer self-control (Hur, Koo & Hofmann, 2015).

We extend this stream by presenting the first empirical integration of anthropomorphism and dehumanization, two processes that are intrinsically linked yet to date have been investigated separately. We show that compared to an advertisement presenting an object alone, pairing a person and an object causes the object to be anthropomorphized and evaluated better. However, compared to presenting a person alone, the same pairing dehumanizes and weakens evaluations of the person. We examine these diverging consequences and document for the first time the simultaneous positive and negative effects tied to the popular marketing tactic of engineering perceptions of humanity.

Conceptualization

Anthropomorphism entails attributing to nonhuman entities humanlike characteristics such as possessing a rational mind or the potential to experience emotions (Epley, Waytz, & Cacioppo, 2007). It can be triggered in different ways, such as by presenting objects to appear humanlike (e.g. facial features; Aggarwal & McGill, 2007) or describing them as having human qualities (e.g. personality; Chandler & Schwarz, 2010). The cognitive mechanism underlying anthropomorphism is the elicitation of knowledge about a perceived agent (Waytz, Cacioppo, & Epley, 2010): while observing an entity, representations and (supposed) facts are activated, leading the observer to reason about the target in a certain framework (Epley et al., 2007). When that target invokes a human, a *human schema* is activated and shifts representations from ‘something’ to ‘someone’ (Aggarwal & McGill, 2007; Waytz et al., 2010).

Perceptions of humanness in non-humans generally promote positive responses due to feelings of sympathy, belonging, familiarity, certainty and comfort (Chen, Wan, & Levy, 2017; Guthrie, 1995; Waytz, Heafner, & Epley, 2014), though negative consequences are also possible such as when distinctiveness motivations are implicated or products are tempting or failing

(Hur, et al., 2015; Puzakova, et al., 2013; Puzakova & Aggarwal, 2018).

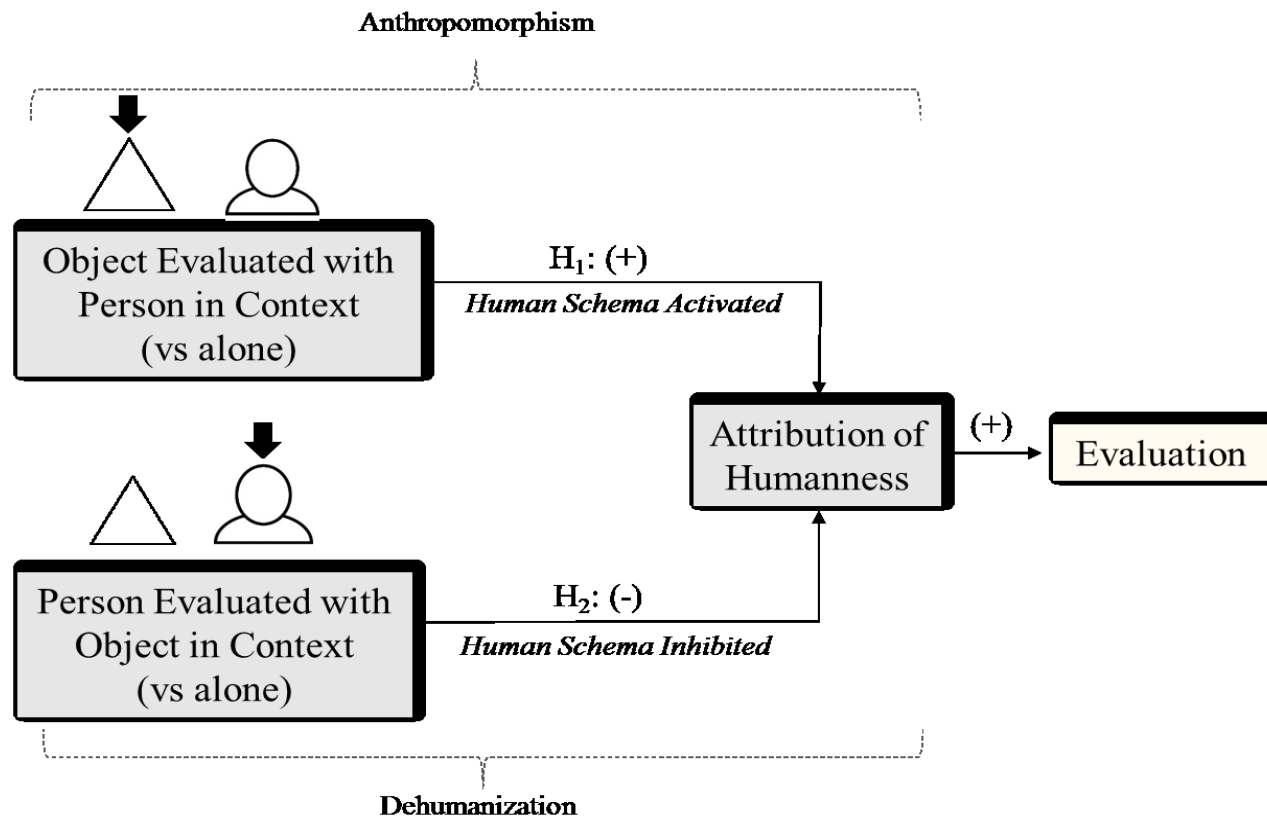
However, anthropomorphism predominantly has a positive connotation (MacInnis & Folkes, 2017) and improves “long-term business success” (Aggarwal & McGill, 2007, p. 470).

Dehumanization denotes the reflection of anthropomorphism, hinging on an insufficient attribution of humanness (Waytz et al., 2010) and contains many nuances. For example, a person can be perceived as lacking an agentic mind if portrayed sexually (Gray et al. 2011), can be infrahumanized (i.e. lacking feelings) when perceived as a member of an out-group (Leyens et al., 2001) or seen as lacking uniquely human traits (e.g. sophistication) when likened to animals or machines (Haslam, 2006; Bastian, Costello, Loughnan, & Hodson, 2012). Regardless of which of these aspects of humanness is implicated, research converges toward the idea that the concept of humanness is not fully activated when encountering others. For example, people attribute more humanness to themselves than to others because they are more acquainted with their own mental states (Haslam et al. 2005). Similarly, there is both less and slower activation of uniquely human emotion words when a person describes an out-group compared to an in-group (Bocatto, Cortes, Demoulin & Leyens,

2006; Vaes, Paladino & Leyens, 2006). These results reveal conditions under which people have cognitive difficulty in activating the human concept, which in turn is associated with a range of negative consequences such as a person being less interested in interacting with, or seeking a harsher punishment for a dehumanized other (Kozak, Marsh, & Wegner, 2006; Martínez, Rodríguez-Bailón, Moya, & Vaes, 2015).

Prior literature suggests that anthropomorphism and dehumanization are complementary processes but empirical support for this view is lacking (Bain et al., 2013; Epley & Waytz, 2009). We integrate by examining both the activation and inhibition of humanness. We propose that consumers will anthropomorphize objects and thus evaluate them better when paired with a person (vs. appearing alone), whose presence eases the accessibility of the concept of humanness. Conversely, compared to a person appearing alone, that same pairing will result in less favorable evaluations of the person because the presence of the object will inhibit the accessibility of the concept of humanness (Figure 1).

Figure 1: General Model

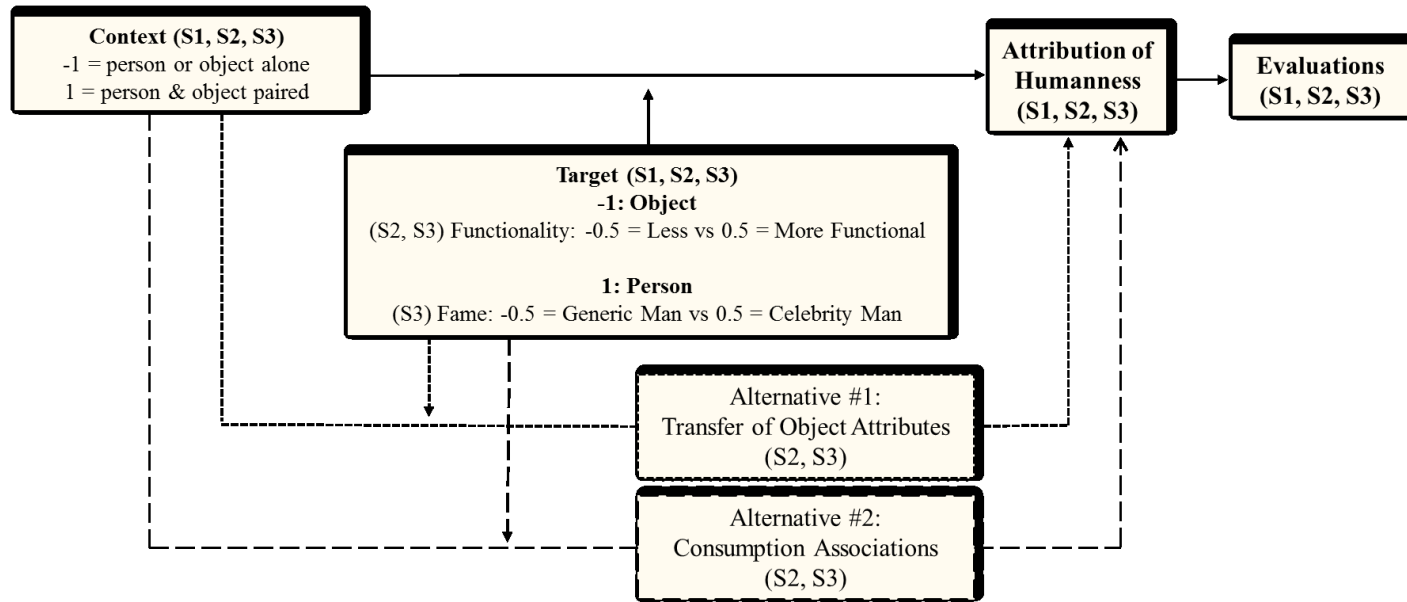


H1: Compared to advertisements displaying an object alone, advertisements that pair an object and a person will lead to superior evaluations through higher attribution of humanness to the object (i.e. *anthropomorphism*).

H2: Compared to advertisements displaying a person alone, advertisements that pair an object and a person will lead to inferior evaluations due to lower attribution of humanness to the person (i.e. *dehumanization*).

In three experiments, we manipulate which target is being evaluated (an object vs. a person) and the context in which the target is portrayed (object and person paired vs. alone). That is, the interaction of the target and the context is expected to impact evaluations through attributions of humanness (Figure 2). We also present evidence to rule out two alternative explanations based on meaning-transfer and consumption associations, and begin to describe the domain of our effects by examining moderation by object functionality (Studies 2, 3) and by the fame (Study 3) of the associated human model. We conclude with a post-test to support our argument that the presence of an object inhibits the activation of a human schema for a paired person.

Figure 2: Summary of Studies



Note: —————> Principal Hypotheses (Model 8, 5,000 draws)
 - - - - -> Alternative #1: Meaning Transfer/Contamination (Model 8, 5,000 draws)
 - - - - -> Alternative #2: Consumption Associations (Model 8, 5,000 draws)

Study 1

The main purpose of Study 1 is to test H_1 and H_2 . We employ a between-subjects experiment with a 2 (target: object vs. person) x 2 (context: alone vs paired) design using *Prolific Academic* panelists. After reading a brief study description, respondents were randomly assigned to one of four conditions where for a minimum of five seconds they viewed one of three stimuli: (1) a picture of a branded object appearing alone, (2) a picture of a woman appearing alone, or (3) the object and woman paired (Table 1).

Table 1: Study 1 Stimuli

Context	Target	
	Object	Person
Alone		
Paired		

Next, they were asked to evaluate either the object (i.e. *object alone*, *object paired* conditions) or the person (i.e. *person alone*, *person paired* conditions) as well as the advertisement itself using standard attitude measures ($Eval_{Target}$ and $Eval_{Ad}$; Spears & Singh, 2004). We then assessed attributions of humanness (AoH) using the Mind Perception (Waytz et al. 2010) and Human Potentials (Kofta et al., 2013) scales. Item order was randomized. We included two attention checks (e.g. “Please select ‘Not at all’”) and collected information on age and gender. We concluded with an open-ended hypotheses-guessing probe, which in this and all other studies provided no cause to delete observations. Details about measures appear in Web Appendix A.

Results: We omitted 25 respondents for failing at least one attention check, leaving a final sample of 364 respondents (60% female, $M_{age} = 35.1$). A factor analysis (Methodological Details Appendix B) reveals that the Mind Perception and Human Potentials scales load onto separate but highly correlated ($r = .88, p < .01$) factors with modest cross-loadings, which supports the creation of a single AoH composite. All measures are reliable (α 's $> .93$).

Analysis confirms our hypothesis. Overall interaction was significant

$t(360)=-3.50, p< .01, \beta= -.05, CI= -.08, -.02$). Objects are perceived as more human-like when paired with a person than when presented alone ($M_{\text{paired_object}}= 1.91$ vs. $M_{\text{alone_object}}= 1.53, t(360)=2.27, p< .03$). The same pairing, compared to presenting the person alone, results in lower perceptions of humanness for the person ($M_{\text{paired_person}}= 4.71$ vs. $M_{\text{alone_person}}= 5.15, t(360)= -2.69, p< .01$). As well, we find support for moderated mediation (Model 8; Hayes 2018; Table 2). Compared to an object alone, an ad that incorporates a person improves $Eval_{Ad}$ ($\beta= .08, CI= .02, .16$) and $Eval_{Target}$ ($\beta= .06, CI= .02, .12$) through increased AoH to the object (i.e. anthropomorphism). Compared to an ad portraying a person alone, a paired ad harms $Eval_{Ad}$ ($\beta= -.09, CI= -.16, -.03$) and $Eval_{Target}$ ($\beta= -.07, CI= -.13, -.02$) due to lowered AoH to the person (i.e. dehumanization). These results offer initial support for the hypotheses.

Table 2: Study 1 Results of Moderated-Mediation Analysis

DV: Evaluations of	Indirect Effect through AoH*					Direct Effect			
	Object is Target		Person is Target		IMM (CI)	Object is Target		Person is Target	
	β	CI	β	CI		β	CI	β	CI
Ad	.08	.02, .16	-.09	-.16, -.03	-.17, (-.27, -.08)	-.21	-.38, -.04	-.11	-.28, .05
Target	.06	.02, .12	-.07	-.13, -.02	-.13, (-.23, -.05)	-.05	-.23, .13	-.59	-.77, -.41

*Note: AoH = Attribution of Humanness; Hayes Model 8 (5,000 draws, CI 95%); moderation is supported only if the IMM (Index of Mediated-Moderation) does not contain 0 (Hayes 2018); **bold** items indicate a significant indirect effect; *positive scores indicate an increase and negative scores indicate a decrease from alone to paired conditions.*

Study 2

We argue that it is the inhibition of a human schema that lowers AoH scores when a person paired with an object is evaluated. We also consider two alternative explanations. First, based on research on contamination and meaning transfer (McCracken, 1989; Nemeroff & Rozin, 1989), two proximate entities may exchange properties. It is thus possible that by pairing an object with a person, characteristics of the former transfer to the latter and cause dehumanization. Here, we examine whether a quality that is emblematic of an object – its perceived functionality (Schmitt, 2012) – moves to and dehumanizes the person.

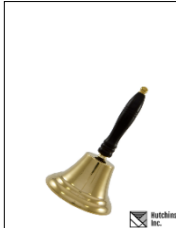
Second, the presence of brands in the stimuli or the experiment's explicit focus on advertisements may cue consumption associations or a cost-benefit mindset, which can promote perceptions of people as less trusting and caring for others (Bauer et al. 2012; Chen, Ng & Rao 2005) and lead to various dehumanizing responses (Harris, Lee, Capestany, & Cohen, 2014; Henkel et al. 2018). Thus we examine consumption associations both as a mediator of the effects on evaluations and as potentially explaining why respondents view a person paired with an object as less human-like.

We use the same panel, general procedure and measures as in Study 1 but with new stimuli (Table 3). To measure the target's functional characteristics (= functionality), we include three items (useful, practical, functional; $\alpha = .88$). We pretested these items using an independent sample from the same participant pool to ensure they are better descriptors of objects ($M = 2.95$) than people ($M_{midpoint} = 3.50$, $t(237) = -6.74$, $p < .01$; scale anchored by 1 = more applicable to objects, 4 = the same, 7 = more applicable to people). We use this measure to test the alternative explanation of contamination or meaning transfer that, in essence, qualities of the object move to the person thereby causing changes in AoH.

Functionality is also a manipulated factor in Study 2. Some objects (e.g. robots vs. rocks) are more or less readily anthropomorphized (Gray, Gray & Wegner 2007; Guthrie 1995), leading us to examine whether an object that is more functional may be associated with similar differences. For example, it might be intuited that a more functional object that is inherently more capable of helping a person to build or create something may be more readily granted human-like qualities. Thus we examine the object's functionality as a moderator of the mediated pathway. We ran a different pretest ($n = 50$) to establish that a bell ($M =$

4.25) is viewed as significantly less functional than a paintbrush ($M= 5.68, p< .01$) and employ both objects in the study. Finally, to measure consumption associations (CA), we asked respondents whether certain thoughts came to mind when viewing the ad. Embedded within the 12 response options, most of which were distractors (e.g. health, art), were three items ‘buying & selling’, ‘consumption’ and ‘shopping’ which jointly formed the CA measure ($\alpha= .78$).

Table 3: Study 2 Stimuli

Object Functionality: Less vs More		Target	Person	
Context	Alone	Paired	Alone	Paired
				
				

Results and Discussion: We omitted 23 respondents who failed at least one attention check ($n = 522$, 59% female, $M_{\text{age}} = 33.9$). We ran Model 8 with specified contrast (5,000 draws, 95% CI, Hayes, 2018).

Moderated-Mediation for Activation-Inhibition Hypotheses. We replicate previous findings. Overall interaction was significant ($t(516) = -4.52$, $p < .01$, $\beta = -.36$, CI = $-.51, -.20$). When paired with a person (vs alone) and regardless of the target's functionality ($t(516) = 1.88$, $p = .06$, $\beta = .26$, CI = $-.01, .54$), objects score higher on AoH (Bell: $M_{\text{paired}} = 2.46$ vs $M_{\text{alone}} = 1.52$, $t(516) = 2.01$, $p = .04$, $\beta = .20$, CI = $.01, .39$; Paintbrush: $M_{\text{paired}} = 1.95$ vs $M_{\text{alone}} = 1.55$, $t(516) = 4.64$, $p < .01$, $\beta = .47$, CI = $.27, .66$). Conversely, AoH for the person is lower when paired ($M_{\text{paired}} = 4.79$) than alone ($M_{\text{alone}} = 5.19$, $t(516) = -2.12$, $p = .03$, $\beta = -.20$, CI = $-.38, -.02$). For both more and less functional objects, evaluations are improved in the paired condition due to anthropomorphism but evaluations of the person suffer due to dehumanization (Table 4). Index of moderated mediation supports our hypothesis (Eval_{Ad} $\beta = -.13$, CI = $-.19, -.07$ and Eval_{Target} $\beta = -.11$, CI = $-.18, -.07$). Additionally, there is no evidence to suggest that changes to evaluations is mediated by consumption associations (CI's for all indirect paths straddle 0).

Table 4: Study 2 Moderated-Mediation Analysis

Moderator Condition	Target	DV: EVAL of	Indirect Effect		IMM (CI) through AoH β (CI)	IMM (CI) through CA β (CI)	Direct effects β (CI)
			AoH β (CI)	CA β (CI)			
Object's Functionality: less- Bell vs more-Brush	Bell is Target	Ad	.17 (.08, .26)	-.01 (-.05, .00)	-.13 (-.19, -.07)	.00 (-.01, .01)	-.09 (-.27, .08)
	Brush is Target		.07 (.01, .15)	-.01 (-.04, .00)			-.37 (-.54, -.19)
Person	Woman is Target		-.07 (-.14, -.01)	-.02 (-.05, .00)			0 (-.16, .17)
Object's Functionality: less- Bell vs more-Brush	Bell is Target	Target	.16 (.08, .24)	-.02 (-.05, .00)	-.11 (-.18, -.07)	.00 (-.02, .01)	.22 (.02, .43)
	Brush is Target		.06 (.01, .13)	-.02 (-.05, .00)			-.18 (.38, .02)
Person	Woman is Target		-.07 (-.13, -.01)	-.01 (-.05, .00)			-.28 (-.47, -.08)

Note: EVAL=Evaluations; AoH = Attribution of Humanness; Model 8 (5,000 draws, 95% CI, Helmert contrast) with two mediators (AoH and Consumption Associations=CA); moderation is supported only if the IMM (Index of Moderated-Mediation) does not contain 0 (Hayes 2018); **bold** items indicate a significant indirect effect; *positive scores indicate an increase and negative scores indicate a decrease from alone to paired conditions.

Alternative 1: Contamination and meaning transfer imply an exchange of properties, so pairing an object with a person should dehumanize the person while *increasing* perceptions of them as object-like, operationalized here as functionality. Statistically this means our Target x Context manipulation should be associated with increased functionality but we find no evidence of this. The person paired with an object shows no greater functionality ($M_{\text{paired}} = 4.53$) than when alone ($M_{\text{alone}} = 4.64$, $t(516) = -.52$, $p = .61$). We also tested (1) whether losses in humanness are mediated by gains in functionality and (2) whether gains in functionality are mediated by losses in humanness. Neither view is supported (Table 5). Attributing humanness to a person is not mediated by increased perceptions of the person's functionality ($\beta = -.01$, $CI = -.05, .02$) and a person does not appear more functional due to decreased humanness; in fact, we find the opposite, that lowered AoH for the person is associated with a *loss* in perceived functionality ($\beta = -.05$, $CI = -.09, -.01$).

Table 5: Study 2 Test of Alternative Explanations

Moderator Condition	Target	DV	Indirect Effect* through CA β (CI)	IMM through CA β (CI)	Indirect Effect* through FUNCT β (CI)	IMM through FUNCT β (CI)	Indirect Effect* through AoH β (CI)	IMM through AoH β (CI)	Direct Effects β (CI)
Object's Functionality Less (-.5) vs More (+.5)	Bell	AoH	.06 (.01, .13)		-.05 (-.09, -.01)		-	-	.18 (.00, .36)
	Paintbrush		.07 (.01, .13)	.01 (-.04, .05)	-.08 (-.14, -.03)	.04 (.01, .07)	-	-	.48 (.29, .67)
	Woman		.07 (.02, .14)		-.01 (-.05, .02)		-	-	-.27 (-.44, -.36)
Object's Functionality Less (-.5) vs More (+.5)	Bell	FUNCT	-	-	-		.05 (.01, .09)		-.32 (-.52, -.10)
	Paintbrush		-	-	-		.11 (.05, .18)	-.14 (-.21, .08)	-.59 (-.80, -.37)
	Woman		-	-	-		-.05 (-.09, -.01)		-.01 (-.20, .19)

Note: FUNCT = Functionality; CA = Consumption Associations; AoH = Attributions of Humanness; Model 8 (5,000 draws, 95% CI, specified contrast, Hayes, 2018). The model examining AoH as DV includes two mediators (Consumption Associations and Functionality) while the model examining Functionality as DV includes one mediator (AoH); moderation is supported only if the MM (Index of Moderated-Mediation) does not contain 0 (Hayes 2018); **bold** items indicate a significant indirect effect; *positive scores indicate an increase and negative scores indicate a decrease from alone to paired conditions.

Alternative 2: When consumption associations is modeled as a mediator of the effect on AoH (Table 5), the result contradicts the alternative hypothesis that more consumption associations cause greater dehumanization (Table 5). Rather, while the overall index of moderated-mediation is not significant ($\beta = .01$, CI = $-.04, .05$), greater CA is associated with *increased* AoH ($\beta = .07$, CI = $.02, .14$). This evidence suggests consumption associations are not a robust explanation for lowered evaluations and dehumanization.

Study 3

In advertising it is common for brands to be promoted by celebrities because of their favorable idiosyncratic qualities. This could alter the results. For example, compared to a generic model, a celebrity may possess a range of positive associations and personalities (McCracken 1989). When compared to a generic model, the celebrity's richer attributes might provide a protective belt against dehumanization. However, it is also plausible that both types of people have a comparable range of human qualities (e.g. free will), meaning there might be no difference between generic and celebrity models despite the latter's distinctive qualities. We examine celebrity as a moderator by including pictures of two men:

the celebrity Seth Rogan and a generic man who bears a strong physical resemblance to Mr. Rogan (Table 6). Otherwise this study uses the same panel, method and measures as Study 2.

Table 6: Study 3 Stimuli

Context	Object Functionality: Less vs More		Person's Fame: Generic vs Celebrity	
	Alone	Paired	Alone	Paired
				
				
				
				

Note: Respondents were significantly more familiar with Seth Rogan ($M = 4.71$) than the generic man ($M = 3.75$, $p < .01$); a manipulation check shows higher functionality scores for Paintbrush (alone) $M = 5.22$ than for Bell (alone) $M = 3.78$ ($p < .01$)

Results and Discussion: Overall interaction was significant ($t(942)=-6.67, p<.01, \beta=-.51, CI=-.66, -.36$). We replicate earlier results: regardless of the object's functionality ($t(942)=-0.23, p=.81, \beta=.01, CI=-.18, .22$), objects score higher on AoH when paired with a person than when presented alone (Bell: $M_{\text{paired}} = 2.16$ vs $M_{\text{alone}} = 1.68, t(941)= 3.06, p < .01$; Paintbrush: $M_{\text{paired}} = 2.07$ vs $M_{\text{alone}} = 1.61, t(941)= 3.36, p < .01$). For both more and less functional objects, evaluations are improved in the paired condition due to anthropomorphism, but evaluations of the person suffer due to dehumanization (Table 7) and in support of our hypotheses, both Indexes of Moderated Mediation through AoH are significant ($\text{Eval}_{\text{Ad}} \beta = -.19, CI = -.25, -.13$ and $\text{Eval}_{\text{Target}} \beta = -.17, CI = -.22, -.12$). We also find that a person's fame is not a boundary of the dehumanization effect. Regardless of fame ($t(942)=-1.01, p=.31, \beta=-.09, CI=-.29, .10$), AoH for the person is lower when paired than when presented alone (Generic: $M_{\text{paired}} = 4.28$ vs $M_{\text{alone}} = 4.92, t(941)= -4.33, p < .01$; Celebrity: $M_{\text{paired}} = 4.96$ vs $M_{\text{alone}} = 4.52, t(941)= -3.08, p < .01$). Finally, as in Study 2 consumption associations are not a likely explanation for inferior evaluations of a person in the paired (vs. alone) condition since indexes of moderated mediation span zero ($\text{Eval}_{\text{Ad}} \beta = -.01, CI = -.01, .01$ and $\text{Eval}_{\text{Target}} \beta = -.01,$

CI= -.03, .02).

Table 7: Study 3 Results of Moderated-Mediation Analysis

Moderator Condition	Target	DV: EVAL of	Indirect Effect*		IMM (CI) through AoH β (CI)	IMM (CI) through CA β (CI)	Direct effects β (CI)
			AoH β (CI)	CA β (CI)			
Object Functionality: Less (-.5) vs. More (+.5)	Bell	Ad	.09 (.04, .15)	.02 (.00, .04)	-.19 (-.25, -.13)	0 (-.01, .01)	-.17 (-.32, -.02)
	Paintbrush		.11 (.06, .16)	.01 (-.01, .03)			-.28 (-.44, -.13)
Person's Fame: Less (-.5) vs. More (+.5)	Generic Man		-.10 (-.15, -.06)	.01 (.00, .02)			-.13 (-.29, .02)
	Celebrity Man		-.06 (-.12, -.01)	.01 (-.01, .03)			-.01 (-.17, .14)
Object Functionality: Less (-.5) vs More (+.5)	Bell	Target	.08 (.04, .15)	.01 (-.01, .04)	-.17 (-.23, -.12)	0 (-.03, .02)	.26 (.12, .41)
	Paintbrush		.09 (.05, .15)	.03 (.01, .06)			.29 (.14, .44)
Person's Fame: Less (-.5) vs. More (+.5)	Generic Man		-.09 (-.14, -.05)	.02 (-.01, .05)			-.28 (-.44, -.13)
	Celebrity Man		-.06 (-.11, -.01)	.02 (.00, .06)			-.17 (-.32, -.03)

*Note: AoH = Attribution of Humanness; EVAL = Evaluations CA = Consumption Associations; Model 8 (5,000 draws, 95% CI, specified contrasts, Hayes, 2018); moderation is supported only if the IMM (Index of Moderated-Mediation) does not contain 0 (Hayes 2018); **bold** items indicate a significant indirect effect (i.e. CI does not contain 0); *positive scores indicate an increase and negative scores indicate a decrease from alone to paired conditions.*

Again, the alternative paths predicting AoH through meaning transfer and consumption associations are not supported (Table 8). Indirect effects indicate that the AoH to a person is not mediated by increased perceptions of person's functionality (Generic: $\beta = -.04$, CI = $-.08, -.01$; Celebrity: $\beta = -.01$, CI = $-.04, .03$) and the overall index of moderated mediation was not significant ($\beta = .01$, CI = $-.02, .05$). Additionally, indirect effects suggest again that person's loss of humanness from paired to alone condition leads to decreased functionality and not inverse as theory would suggest (Generic: $\beta = -.11$, CI = $-.17, -.06$; Celebrity: $\beta = -.07$, CI = $-.13, -.01$).

Table 8: Study 3 Test of Alternative Explanations

Moderator Condition	Target	DV	Indirect Effect through CA β (CI)	IMM through CA β (CI)	Indirect Effect through FUNCT β (CI)	IMM through FUNCT β (CI)	Indirect Effect through AoH β (CI)	IMM through AoH β (CI)	Direct Effects β (CI)
Object's Funct.: Less (-.5) vs More (+.5)	Bell	AoH	.05 (.02, .08)		-.03 (-.08, .02)		-		.27 (.13, .41)
	Paint-brush		.02 (-.01, .05)	0 (-.04, .03)	-.05 (-.09, -.01)	.01 (-.02, .05)	-		.29 (.16, .43)
	Generic		.03 (-.01, .06)		-.04 (-.08, -.01)		-		-.27 (-.41, -.13)
	Celebrity		.03 (-.00, .07)		-.01 (-.04, .03)		-		-.21 (-.34, -.07)
Object's Funct.: Less (-.5) vs More (+.5)	Bell	FUNCT	-		-		.11 (.06, .17)		-.24 (-.42, -.06)
	Paint-brush		-	-	-	-	.10 (.04, .17)	-.19 (-.27, -.13)	-.34 (-.52, -.16)
	Generic		-		-		-.11 (-.17, -.06)		-.11 (-.28, .08)
	Celebrity		-		-		-.07 (-.13, -.02)		.04 (-.13, .22)

Note: FUNCT = Functionality; CA = Consumption Associations; AoH = Attributions of Humanness Model 8 (5,000 draws, 95% CI, specified contrast, Hayes, 2018). The model examining AoH as DV includes two mediators (Consumption Associations and Functionality) while the model examining Functionality as DV includes one mediator (AoH); moderation is supported only if the IMM (Index of Moderated-Mediation) does not contain 0 (Hayes 2018); **bold** items indicate a significant effect; *positive scores indicate an increase and negative scores indicate a decrease from alone to paired conditions.

Post Test

In ruling out consumption associations and the transmission of an object's qualities to a person (i.e. transfer of functionality) as causes of dehumanization when a person is paired with an object, our conceptualizing is bolstered. Our argument is further supported by theoretically predicted changes in attributions of humanness. To explore whether we could secure more direct evidence that the human schema is inhibited, we conducted a post-test. We focused on the two conditions where a person is evaluated (person alone, person paired) and created two versions of a one-factor (Context: alone vs. together) between-subjects experiment using two sets of pictures from earlier experiments (one male, one female). Respondents were randomly assigned to view one of the four pictures and asked to describe the person in the photograph using the open-ended text box that followed. We also added a two-item measure (adapted from Park, et al. 2010; $\alpha = .93$) to assess the automaticity of thoughts related to that person (i.e. "my thoughts about this person were automatic, coming to mind on their own" and "my thoughts about this person came to mind naturally and instantly"). In lay terms, this measure assesses how easy it was for respondents to provide feedback about the person's qualities (*response ease*). If our

inhibition account is true, respondents should report it is harder to provide feedback in the *together* condition than the *alone* condition.

Our inhibition account might be further supported if there is evidence of frustration in the words that respondents use in their open-ended feedback. To evaluate this possibility, we analyzed the feedback using the Linguistic Inquiry and Word Count (LIWC) 2015 software, using differences in the number of swear words and non-fluencies (e.g. umm, hm...) as evidence of respondent frustration. We also evaluated the total number of words written to ensure that writing quality not quantity explains differences. We collected 237 responses using *Prolific Academic* ($M_{\text{age}} = 29.1$, 49% female) evenly distributed across the four cells. Statistically we included a dummy for whether respondents viewed a picture depicting a man or woman but it was significant in only one instance – respondents swore more in the male condition than the female condition ($F = 5.41, p < .02$).

Compared to those in the alone condition, respondents in the together condition reported lower response ease ($M_{\text{alone}} = 4.75$ vs. $M_{\text{together}} = 4.24, F = 5.35, p < .05, \eta^2 = .02$) as well as more use of swear words ($M_{\text{alone}} = .04$ vs. $M_{\text{together}} = .50, F = 3.75, p < .05, \eta^2 = .02$) and non-fluencies ($M_{\text{alone}} = .16$ vs.

$M_{\text{together}} = .62, F = 4.92, p < .05, \eta^2 = .02$). However, there was no difference in total words used ($M_{\text{alone}} = 24.03$ vs. $M_{\text{together}} = 22.17, F = .70, p > .10, \eta^2 = .00$). Taken together, these results reveal lower response ease and heightened frustration when participants are evaluating the person presented with an object versus appearing alone. Rather than varying how much they wrote, respondents appeared to change the quality of their writing. Jointly they are interpretable as providing evidence of inhibition of a human schema.

General Discussion

Epley and colleagues (2007) suggest that anthropomorphism is the inversion of dehumanization. Our results agree: the same pairing that anthropomorphizes objects also harms the humanity of the embedded models. Thus we contribute the first evidence that the two processes can occur in opposite directions with an identical stimulus. In fact, the cognitive mechanism – the relative success or failure to activate a human schema – applies to both objects and people, providing data that converges with Epley et al.’s theorizing. It is well established in extant research that the activation of humanness is the process underlying anthropomorphism but the inhibition of humanness is attended to much less. Indeed until recently consumer psychologists were more

attentive to understanding the benefits rather than the downsides of humanizing strategies probably because the phenomenon is relatively new to the marketing domain and is a demonstrated driver of marketing performance. But in our studies we document both a positive and a negative effect, owing to differences across the activation and inhibition of human schemas, while also excluding two alternative explanations tied to meaning and consumption associations.

We document several moderators. For example, the effect persists with famous and non-famous models as well as male and female models. Examining other boundaries would be worthwhile. For example, research proposes different types of dehumanization (e.g. animalistic vs. mechanistic; Haslam 2006) that might generate insight. Other features of the person might matter too: we speculate, for example, that portraying sexualized models would not replicate our effects because such people are already dehumanized (Erchull 2013) and therefore should be incapable of anthropomorphizing a proximate object.

We also found that objects may be anthropomorphized but only if moderately or highly functional. This invites research on two issues. First, what qualities of objects inherently make them more or less likely to be

anthropomorphized? An object's movement or physical features matter (e.g. Morewedge, Preston & Wegner 2007; Aggarwal & McGill 2007), but these results seem less relevant to other objects (e.g. brands) where physical features may be trivial (e.g. Amazon). Second, the literature contains diversity in the overtness of anthropomorphism manipulations (e.g. showing brand logos with limbs) but it is less known how such manipulations interact with qualities of the object. Are there negative effects from going too far? For example, our intuition is that consumers would react poorly to efforts to anthropomorphize funeral home or birth control brands. Marketers would benefit from examining what may be a wide continuum: from objects that should never be humanized to objects needing little help from marketers because consumers naturally think of them as 'humanlike'.

Further, though we show that merely placing a person and object together causes anthropomorphism, our approach invites questions about ecological validity. Extant anthropomorphism tactics are often both contrived and methodologically necessary in order to examine theoretical pathways. Our approach is similarly contrived because we direct respondents to think about either the portrayed object or person. Because the ad itself is unchanged, the act

of diverting the viewer's attention to the object or person alters reactions to the ad itself. From an experimental standpoint, adjusting attention this way is justified but leaves unanswered what occurs when consumers see paired ads in a natural setting. Do they evaluate the humanness of both targets or does their attention gravitate toward one? The same question can be asked of other directive anthropomorphism approaches such as encouraging respondents to imagine a brand coming alive as a person (e.g. Aggarwal and McGill, 2012). That is, to what extent do consumers ascribe personality or other human characteristics to brands if not prompted to do so? These questions bear examination because it is possible that research on anthropomorphism advance as benefits various effects that are in fact artefactual and perhaps not even achievable in a practical sense. More ecologically valid research on anthropomorphism would be helpful.

Our results seem to be consistent with the view that the amount of 'humanity' available for attribution across two targets is finite with allocations made in inverse proportions. Because our studies use a between-subjects design, we cannot address the issue empirically, but a promising line of inquiry is to start by understanding how much relative attention respondents pay to each of

the targets in an ad that pairs both a person and an object. It would be interesting to consider whether allocations of humanness are made in some zero-sum way (offset effect) or are there circumstances where a person may retain their ‘humanness’ while benefitting a proximate brand (halo effect)? With celebrity endorsements, for example, our results suggest that a celebrity may be viewed as ‘less human’ as a function of being depicted proximally to an object, which may be of concern to that celebrity’s image managers.

Our results suggest that depending on whether the consumers’ focus is the object or person, attributions of humanness run in opposite directions, thereby helping or harming the associated ad and target. Rather than suggesting anthropomorphism is inherently good or bad, we suggest it is a double-edged sword. As the first to show the ambivalent effects of such a ‘humanness’ tactic, we hope to elicit more research that contemplates both points of view.

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Appendix A:

Measures and Instructions Attribution of Humanness (AoH)

Directions: To what extent does this product [brand, person] seem to: *(anchored by 1 = not at all, 7 very much)*

	Items:
	have a mind of its own
Scale:	have intentions
Mind	have a free-will
Perception	have a consciousness
Waytz et	have desires
al. 2010	have beliefs
	have the ability to experience emotions

Human	strive to understand the world
Potential	be able to consider things that could have happened
Kofta et	use abstract terms
al. 2013	be able to imagine things that have never existed
	be able to give arguments for and against his/her decisions
	be able to think about his/her life
	have a rich inner life
	strive to make his/her life meaningful
	be aware of his/her mortality
	be able to imagine his/her own future
	want to be remembered by posterity
	celebrate anniversaries of events that were important to him/her
	believes in spirituality
	have the ability to believe in religion
	feel the need to commune with art
	desire freedom of speech
	desire freedom of beliefs
	commemorate important events / persons

Attitude toward the Ad ($Eval_{Ad}$)

How do each of the following describe your attitude toward the ad:

- 1 = unappealing, 7 = appealing
- 1 = bad, 7 = good
- 1 = unpleasant, 7 = pleasant
- 1 = unfavorable, 7 = favorable
- 1 = unlikeable, 7 = likeable

Attitude toward the Target ($Eval_{Target}$)

How do each of the following describe your attitude toward the object (person) in the ad:

- 1 = unappealing, 7 = appealing
- 1 = bad, 7 = good
- 1 = unpleasant, 7 = pleasant
- 1 = unfavorable, 7 = favorable
- 1 = unlikeable, 7 = likeable

Functionality

To what extent does the object (person) shown in the photograph feel...(anchored by 1 = not at all, 7 = very much; items were embedded in a list of distractor terms (e.g. memorable, like my equal).

- Functional
- Practical
- Useful

Consumption Associations (CA):

When you were looking at the ad, to what extent did thoughts come to mind about...(anchored by 1 = not at all, 7 = very much; items were embedded in a list of distractor terms (e.g. health, art).

- Buying & selling
- Consumption
- Shopping

Post –test directions:

Below, we present a photograph. Please look at it carefully. In particular, focus on the person in the photo. Think about the person's characteristics and attributes. What kind of person are they? What adjectives describe them? What do you imagine are that person's qualities? In the space below, please write in as much detail as you can your thoughts about the person.

Appendix B: Summary Statistics

Measure	Study 1		Study 2			Study 3		
	M	SD	α	M	SD	α	M	SD
Attribution of Humanness	3.19	1.92	.92	3.03	1.94	.93	3.31	1.84
Consumption Associations	-		.78	2.98	1.91	.76	2.94	1.09
Functionality	-		.88	4.19	1.59	.89	4.75	1.62
Eval _{Ad}	4.03	1.44	.95	4.76	1.49	.95	4.29	1.47
Eval _{Target}	4.32	1.42	.96	4.75	1.46	.96	4.55	1.39

Note: Correlation between Attribution of Humanness and Consumption Associations was $r = .29$ ($p < .01$) in Study 2, and $r = .33$ ($p < .01$) in Study 3.

Appendix C: Summary of Means by Condition

Study	Moderator	Context	Attribution of Humanness (AoH)*						Evaluation of the Photo (Eval_AD)						Evaluation of the Target (Eval_TARGET)					
			Object is Target			Person is Target			Object is Target			Person is Target			Object is Target			Person is Target		
			M (SD)	t (p)	ηp^2	M (SD)	t (p)	ηp^2	M (SD)	t (p)	ηp^2	M (SD)	t (p)	ηp^2	M (SD)	t (p)	ηp^2	M (SD)	t (p)	ηp^2
1	-	Solo	1,53 (.80)	2.27 (=.02)	.01	5,15 (.81)	-2.67 (<.01)	.02	3,91 (1.22)	-.72 (=.47)	.00	5,18 (1.36)	-.72 (=.47)	.00	3,74 (1.19)	5.14 (=.03)	.00	5,16 (1.16)	5.14 (=.03)	.13
		Paired	1,91 (1.27)			4,71 (1.01)			3,66 (.98)			4,75 (1.22)			3,81 (1.19)			3,81 (1.23)		
2**	Less Functional Object (= Bell)	Solo	1,52 (.95)	2.02 (=.04)	.01	5,19 (1.06)			4,21 (1.23)	.58 (=.55)	.00	5,78 (1.09)			4,18 (1.12)	1.27 (=.20)	.00	5,64 (1.30)		
		Paired	2,46 (1.64)			4,79 (1.09)	-2.12 (=.03)	.01	4,32 (1.21)			5,62 (1.23)	-.94 (=.34)	.00	4,91 (1.35)			4,91 (1.39)	3.61 (<.01)	.03
	More Functional Object (= Paintbrush)	Solo	1,55 (.85)	4.64 (<.01)	.04	-			4,59 (1.08)	-3.29 (<.01)	.02	-			4,58 (1.11)	3.37 (<.01)	.03	-		
		Paired	1,95 (1.25)			-			3,97 (1.09)			-			4,31 (1.31)			-		
	Less Functional Object (= Bell)	Solo	1,54 (.98)	3.74 (<.01)	.01	-			4,12 (1.08)			-			3,85 (1.21)	.04 (=.65)	.00	-		
		Paired	2,07 (1.30)			-			3,97 (1.18)	-.87 (=.45)	.00	-			4,13 (1.41)			-		
3**	More Functional Object (= Paintbrush)	Solo	1,49 (.67)	3.51 (<.01)	.02	-			4,37 (1.18)			-			4,06 (1.27)	1.55 (=.12)	.00	-		
		Paired	2,1 (1.31)			-			4,04 (1.08)			-			4,14 (1.34)			-		
	Generic Man	Solo	-			4,95 (.79)	-3.71 (<.01)	.01	-			5,26 (1.17)			-			5,19 (1.16)	-6.41 (<.01)	.04
		Paired	-			4,38 (1.06)			-			4,8 (1.20)	-.87 (=.45)	.00	-			4,03 (1.19)		
	Celebrity Man	Solo	-			4,97 (.89)	-2.35 (=.02)	.01	-			5,13 (1.32)			-			5,05 (1.28)	-4.25 (<.01)	.02
		Paired	-			4,62 (1.19)			-			6 (1.38)			-			4,31 (1.36)		

*Note: Simple effects are reported only when the overall interaction in the model is significant *The overall interaction of the full models are uniformly significant: S1 $t(360)=-3.5, p<.01, \beta = -.05, CI = -.08, -.02, \eta^2=.03$; S2 $t(516)=-4.52, p<.001, \beta = -.36, CI = -.51, -.20, \eta^2=.04$; S3 $F(3,942)=15.11, p<.001$. In each study, the correlation of the two DVs was positive and significant: S1, $r = .67, p<.01$; S2, $r = .61, p<.01$; S3, $r = .69, p<.01$. ** Moderation by the type of Object was not significant Study 2: $t(516)=1.88, p=.06, \beta = .26, CI = -.01, .59$, Study 3: $t(942)=-.24, p=.81, \beta = -.03, CI = -.24, .19$; neither was moderation by Person's fame Study 3: $t(942)=-1.02, p=.32, \beta = -.11, CI = -.32, .12$.*

Appendix D:

Model 8 PROCESS Syntax for Study 3

PROCESS allows one to specify contrasts through command `mcw=5`. Using this command, we could simultaneously test whether the moderation by the type of Target occurred, and if yes, where (i.e. between what specific levels of the Target factor?):

1. the first column of contrasts (-0.5, -0.5, 0.5, 0.5) specifies two levels of the Target factor (i.e. -1= object vs 1= person)
2. the second column (-0.5, 0.5, 0, 0) specifies moderation by the type of the object
3. the third (0, 0, 0.5, -0.5) specifies moderation by the type of the person.

The IV, Context, is always coded the same (-1= alone vs 1= together).

The DV's are $Eval_{AD}$ and $Eval_{TARGET}$.

The output then shows whether the interaction is significant and at what level of the IV (i.e. Target). Importantly for our hypothesizing the first contrast was always significant (see manuscript). The second set of contrast tests whether moderated mediation (i.e. indirect effects on $Eval_{AD}$ and $Eval_{TARGET}$ through AoH) is stronger/weaker for objects varying in functionality, which is not the case ($Eval_{Ad} \beta = -.01$, CI= -.08, .06; $Eval_{Target} \beta = -.01$, CI= -.07, .05).

Analysis of the third set of contrast was also not significant, indicating that indirect effect on $Eval_{AD}$ and $Eval_{TARGET}$ through AoH are not stronger/weaker for different people, that is drop in evaluations due to dehumanization was not different for generic person vs celebrity (Study 3: $Eval_{Ad} \beta = -.04$, CI= -.11, .02; $Eval_{Target} \beta = -.04$, CI= -.09, .02).

SPSS Syntax:

PROCESS

y=DV

/x=Context

/w=Target

/m=AoH CA

/mcw=5

/wcatcode= -0.5, -0.5, 0,
 -0.5, 0.5, 0,
 0.5, 0, 0.5,
 0.5, 0, -0.5

/plot=1

/decimals=F10.4

/effsize=1

/boot=5000

/conf=95

/model=8.

Essay 3:

Conditioned to like mindful brands

and mindless models

Note : this essay is co-written as first author by doctoral candidate, in collaboration with Adrien Mierop (Université catholique de Louvain, Psychological Science Research Institute - IPSY), Nicolas Kervyn (Université catholique de Louvain, Louvain Research Institute in Management and Organizations-LouRiM) and Matthew Thomson (Western University, Ivey Business school)

An earlier version of this essay has been presented at research seminars hosted by LouRiM, IPSY and Center on Consumers and Marketing Strategy (CCMS) at Université catholique de Louvain, 2018

Before the data collection, studies were pre-registered (see Appendix D)

The target journal for this essay is the Journal of Advertising or Psychology & Marketing

Abstract

Two popular tactics of enhancing brands' perceptions are: 1) creating associations by presenting a brand with a person (e.g. a model, Shavitt, Swan, Lowrey, & Wänke, 1994) and 2) brand anthropomorphism (i.e. thinking of brands as having humanlike mind, MacInnis & Folkes, 2017). So far, the focus was solely on the consequences of these practices for brands. Here, the aim is to extend the scope and focus on consequences onto both entities: brands *and* models. Specifically, we explore whether the transfer of entity's evaluative (i.e. likeability) and non-evaluative (i.e. mind) properties occur after repetitive pairing (i.e. conditioning). By integrating these ideas, important yet neglected questions are addressed: 1) what happens to the perception of the person after being paired with a brand? and 2) to what extent is attributing mind to objects (e.g. brands) interwoven with the decreased mind attribution to people (e.g. models)? In two studies we use conditioning procedures to test the hypotheses that repetitive brand-model (vs brand-brand) pairing is beneficial for the brand leading to the transfer of likeability and mind while model-brand (vs model-model) pairing is harming perception of the model's mind and likeability. We find that a brand's likeability (Study 1 & Study 2) and mind (Study 2) are increased when it is paired with a model (vs brand). Although we don't find a significant drop in model's likeability, the predicted drop in mind perception after the pairing with brands (vs models) does occur (Study 2). Results are discussed in light of the literature on conditioning and mind attribution.

Keywords : Mind attribution, attribute transfer, conditioning, advertising.

Introduction

Early studies revealed that advertisings with (vs without) models, have more positive effects for products' quality perceptions (Kanungo & Pang, 1973). Ever since the quest for an optimal person for the brand has been pursued. For example, attractive models are good at enhancing perceptions of brands of cosmetics (Till & Busler, 2000), and credibility of a sports brand is greater if it is endorsed by a professional athlete, than by a professional singer (Temperley & Tangen, 2006). Choosing celebrities to endorse brands bloomed in the past 20 years (Erdogan, 1999), and the newest recommendation is use of brand consumers and brand ambassadors (Perry, 2018; Yan, 2011). Why is using people for advertising so popular? Scholars and practitioners are in favour of brand-people pairings because it can benefit the brand in at least two ways: enhancing brands perceptions and helping with brand humanization (Fleck, Michel, & Zeitoun, 2014; Gibson, 2008). Unknown or mature brands can count on transfer of positive characteristics and even personality from their human counterparts (Ambroise, Pantin-Sohier, Valette-Florence, & Albert, 2014; Fleck et al., 2014; Gibson, 2008; Shimp, Stuart, & Engle, 1991). However, the consequences of such practices for individuals are an under-researched topic,

yet today there are more and more people eager to become associated with brands (Audrezet, de Kerviler, & Guidry Moulard, 2018; Kapitan & Silvera, 2016; Nielsen, 2013). We address this question by exploring the other sides of both the conditioning and the humanization literature (i.e. mind attribution theory, (Waytz, Gray, Epley, & Wegner, 2010). Specifically, we examine whether a person that provides positive qualities such as likeability and mind to a brand is vulnerable to the loss of these qualities after repetitive pairing with a brand (i.e. the conditioning procedure). Ethical questions regarding these practices revolve mostly around protecting brands and consumers (e.g. Boerman, Willemsen, & Van Der Aa, 2017; Feinman, 2011). The stakes for people associated with brands are rarely explored. It has been found that individuals (i.e. social media influencers) approached by brands to promote their products might risk being seen as inauthentic (i.e. motivated by financial and not intrinsic reasons; Audrezet et al., 2018). However, the direct effects of brands on perception of people remains an under-researched topic. With present research we hope to provide insights regarding this issue.

Evaluative and Semantic Conditioning

Many valuable insights for marketers are found in the conditioning literature, such as how to achieve the transfer of qualities between two entities (e.g. a brand and a person). The essence of conditioning is the change in perception of evaluative or non-evaluative properties of a stimulus after repeatedly being paired with another stimulus in spatio-temporal contiguity (Schachtman & Reilly, 2011; Schachtman, Walker & Fowler, 2010). This applies for any sensory modality (e.g. auditory, Blair & Shimp, 1992), yet given the focus of our research, we present a short overview of important findings that are based on the picture-picture paradigm (Levey & Martin, 1975), that is, when both stimuli are visual.

Evaluative conditioning as an effect globally refers to the transfer of valence to the target stimulus from its pair due to their repetitive co-occurrence (De Houwer, 2007). The target stimulus is known as the conditioned stimuli (CS) and the pair as unconditioned stimulus (US). While the US is perceived as high in valence (positive or negative), the CS is initially neutral or less valenced compared to the US (De Houwer, 2007). The typical outcome is a change in people's attitudes toward the CS in the direction of the valence of the US after repeated exposure to CS-US pairs (for reviews, see De Houwer, Thomas, &

Baeyens, 2001; Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010; Jones, Olson, & Fazio, 2010). For example, pairing a photo of a person (i.e. CS) with pleasant pictures (i.e. US) increases liking of that person, while pairing with an unpleasant picture (i.e. US) decreases liking of person (Hütter, Sweldens, Stahl, Unkelbach, & Klauer, 2012).

Applied to the advertisement domain, the brand (unknown or known) is usually the CS, while US can encompass (pleasurable or unpleasurable) imagery ranging from landscapes to people (Fleck, Korchia, & Le Roy, 2012; Grossman & Till, 1998; Pleyers, Corneille, Luminet, & Yzerbyt, 2007). After repeated exposure to pairings of a brand (i.e. CS) with a pleasurable or positively valenced stimulus (i.e.US), respondents like the brand more (Grossman & Till, 1998). Inversely, if the brand is paired with unpleasurable or negatively valenced photo (US) participants end up disliking the brand (Pleyers et al., 2007).

Non-evaluative conditioning is based on the same idea and procedures with the exception that it considers the transfer of more meaning oriented attributes and not just valence (Unkelbach, 2011). For example, gender can be transferred from female or male faces onto gender-ambiguous looking babies

(Meersmans, Houwer, Baeyens, Randell, & Eelen, 2005), or athleticism can be transferred from athletic to “athletic-neutral” people (Unkelbach, 2011).

In an advertising context, pairing a brand of pizza with a racing car successfully increased perception of the brand as being fast, or pairing a brand of tissues with kittens increased perceived softness of the brand (Kim, Allen, & Kardes, 1996). Conversely, pairing a mature, appreciated brand such as Clinique with a controversial celebrity such as Britney Spears, cheapens the perception of the Clinique brand (Miller & Allen, 2012).

Marketers are careful to choose appropriate individuals to pair with their brand since the transfer of evaluative and non-evaluative qualities from a person is almost a certainty, especially if there is an awareness of the relation between the brand (i.e. CS) and the person (i.e. US) (i.e. contingency awareness, Pleyers et al., 2007; Temperley & Tangen, 2006).

Humanization

There is another benefit of coupling a person with a brand: brand humanization (Fleck et al., 2014). Advertisement featuring celebrities, ordinary people, such as everyday consumers or brand employees and company founders successfully personify brands (Ambroise et al., 2014; Fleck et al., 2014).

Humanization of a brand, that is anthropomorphism implies reasoning about objects as if they have humanlike mind and qualities (Waytz, Cacioppo, & Epley, 2010). It is frequently achieved through direct rhetorical and/or visual cues embedded in the presentation of the object itself (H. C. Kim & Kramer, 2015). For example, increased mind perception can be attained through the use of pronouns such as “I, him, her” instead of “it” (Ahn, Kim, & Aggarwal, 2014), or by presenting products in a way that is evoking human schemas (e.g. grids on a car arranged as a smile or as a frown, Aggarwal & McGill, 2007).

Although generally praised due to its numerous benefits like increased attachment and attitude (MacInnis & Folkes, 2017), explicit anthropomorphism of brands can sometimes cause negative reactions such as reluctance to disclose sensitive information (Puzakova, Rocereto, & Kwak, 2013). While researchers have been interested in unveiling drawbacks of this tactic for brands (e.g. Puzakova & Aggarwal, 2018; Puzakova & Kwak, 2017; Puzakova, Kwak, & Rocereto, 2013; Puzakova, et al., 2013), we wanted to explore the consequences of this practice for people associated with brands. Many suggest that ascribing mind to objects is closely related to the lack of mind attribution to individuals (Delbaere, McQuarrie, & Phillips, 2011; Kwan & Fiske, 2008; Waytz, Epley, & Cacioppo, 2010). So far, diminished mind perceptions are found in

advertisements where the focus is on models' bodies rather than faces, or when the portrayal of the model is sexualizing (Gray, Knobe, Sheskin, Bloom, & Barrett, 2011; Heflick, Goldenberg, Cooper, & Puvia, 2011; Loughnan et al., 2010; Puvia & Vaes, 2013). Recently, it has been found that a thrift-oriented positioning of a brand can lead to dehumanized perception of its employees, providing the first insights that brands can have direct negative effects on perception of people's humanness (Henkel, Boegershausen, Hoegg, Aquino, & Lemmink, 2017).

Building upon this literature we aim to examine the close inter-relatedness between the ascription of mind to brands and disclaiming mind to people, that is, perceiving brands as mindful and people as mindless. Additionally, we explore whether changes in perception of US occur after the repetitive pairing with CS, a topic that conditioning literature so far has neglected.

Hypothesis

The previous overview suggests that paring entities differing (vs not differing) in evaluative and non-evaluative properties should lead to greater transfer of attributes (Dimofte & Yalch, 2011). Coupling this with implications

stemming from mind attribution theory (Epley, Schroeder, & Waytz, 2013), it follows that *for brands*, pairing with models that are likeable and inherently more mindful than brands should have positive impact and result in transfer of these evaluative (i.e. likeability) and non-evaluative properties (i.e. mind):

H1a: repeated exposure to mixed, brand-model pairs compared to same, brand-brand pairs should lead to increase liking of brands.

H1b: repeated exposure to mix, brand-model pairs compared to same brand-brand pairs should lead to increase in mind perception of brands.

However, pairing with brands that are less positive and inherently less mindful than models should result in negative consequences *for models*:

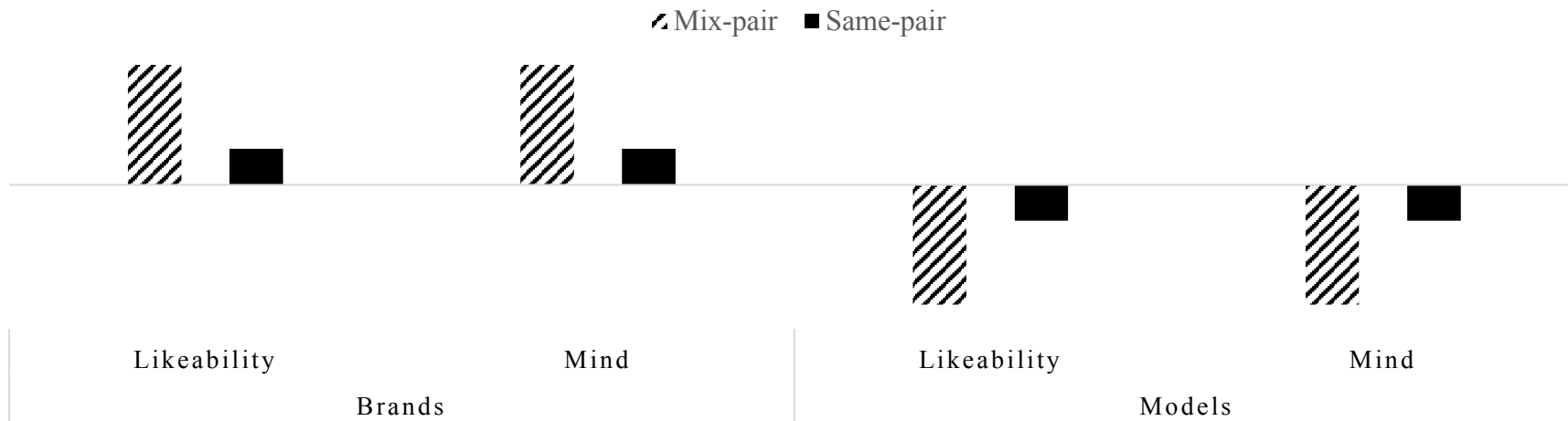
H2a: repeated exposure to brands and models (i.e. mix pairs) compared to model-model pairings (i.e. same pairs) will decrease the liking of models

H2b: repeated exposure to brands and models (i.e. mix pairs) compared to model-model pairings (i.e. same pairs) will decrease mind ratings of models.

In two studies, these ideas are tested by exploring changes in perception of likeability and mind attribution of the two targets: brands and models. We measured likeability and mind attribution of both targets before and after the conditioning procedure during which participants were repeatedly exposed to either brand-model pairings (i.e. mix-pairs) or to brand-brand and model-model

pairings (i.e. same-pairs) (see Figure 1 for hypothesized pattern of results). Positive scores indicate an improved response after the pairing, that is, a target is perceived as more likeable and more mindful. Negative scores indicate a decline in responses, that is, a target is perceived as less likeable and mindful after the pairing procedure. By doing so, we were able to isolate the impact of the mix-pairing on likeability and mind for each target while keeping constant the frequency of exposure to brands and models.

Figure 1. Hypothesized pattern of results



Note: We expect increase in likeability (H1a) and mind (H1b) of brands after being paired with models (i.e. mix pair) vs brands (i.e. same pair) and decrease in likeability (H2a) and mind (H2b) of models after being paired with brands (i.e. mix pair) vs models (i.e. same pair)

Study 1

Material

We pretested photos of fictitious brands and chose 8 photos that do not differ on perceived characteristics (i.e. likeability and mind; see Appendix B). The average likeability of brands was at $M=33.96$ ($SD= 24.78$) and mind at $M=30.22$ ($SD=27.81$). Likewise, we pre-tested photos of female models and kept 8 that do not differ in perceived likeability ($M=62.42$, $SD=21.57$) and mind ($M=73.64$, $SD=23.71$, see Appendix B).

Design and Procedure

We used 2 (Target: Brand, Person) $\times 2$ (Attribute: Likeability, Mind) $\times 2$ (Pairing: Mix-pairs, Same-pairs) mixed factorial design, with Target and Attribute as within participants factors, and Pairing as between participants factor. The experiment was made with Testable, an online software.

Respondents were exposed to 16 photos of targets (8 brands and 8 models) and asked to rate each target on two attributes (likeability and mind) using a slide bar (0-“Definitely not” to 100-“Definitely yes”). In a second phase, participants were randomly assigned to one of the Pairing conditions and saw either 8 ‘mix-pairs’ (brand-model/model-brand pairs) or 8 ‘same-pairs’ (4 model-model and 4

brand-brand pairs). Specifically, they were exposed to two photos on a screen presented side by side. Presentation of each pair of photos lasted for 3000ms and appeared 6 times in a randomized order. All participants saw a total of 48 pairs of photos. After the second phase, participants were again asked to rate all targets on two attributes (see Appendix A for detailed instructions and stimuli). with Questions regarding participants' age and gender concluded the study.

Participants. One hundred seventy-eight participants (113 female, $M_{age}=32.86$) from an online panel 'Prolific Academic' completed the experiment for a small payment. The distribution of respondents across conditions was not significantly different ($\chi^2 = .56$, $p = .45$; 94 in mix-pair conditions vs. 84 in same-pair conditions). Participants' age and gender did not have a significant effect and were excluded from subsequent analyses.

Results and Discussion Dependent Measures and Analysis. Our hypothesis specify a positive change for brands –an increase in likeability and mind after the exposure to mix pairs (vs same pairs) and a negative change for models- a decrease in likeability and mind after the exposure to mix pairs (vs same pairs). Difference scores for likeability ($D\text{-Like} = \text{Like}_{\text{after_pairing}} - \text{Like}_{\text{before_pairing}}$) and for mind ($D\text{-Mind} = \text{Mind}_{\text{after_pairing}} - \text{Mind}_{\text{before_pairing}}$) were calculated to measure changes in the judgement of stimuli. We ran a linear mixed model (LMM) using SPSS (version 25) with Target (-1: brands and 1: models), Attribute (mind and likeability), Pairing (-1: mix-pair and 1: same-pair) and their interaction terms as fixed effects. To account for the variability induced by participants (intraclass correlation–ICC= 0.15) we treated them as a random factor (Heck, Thomas & Tabata, 2010). The variability induced by the stimuli (ICC= 0.02) was under the recommended threshold of 0.05 thus not included in a model as a random factor (see Heck, Thomas & Tabata, 2010).

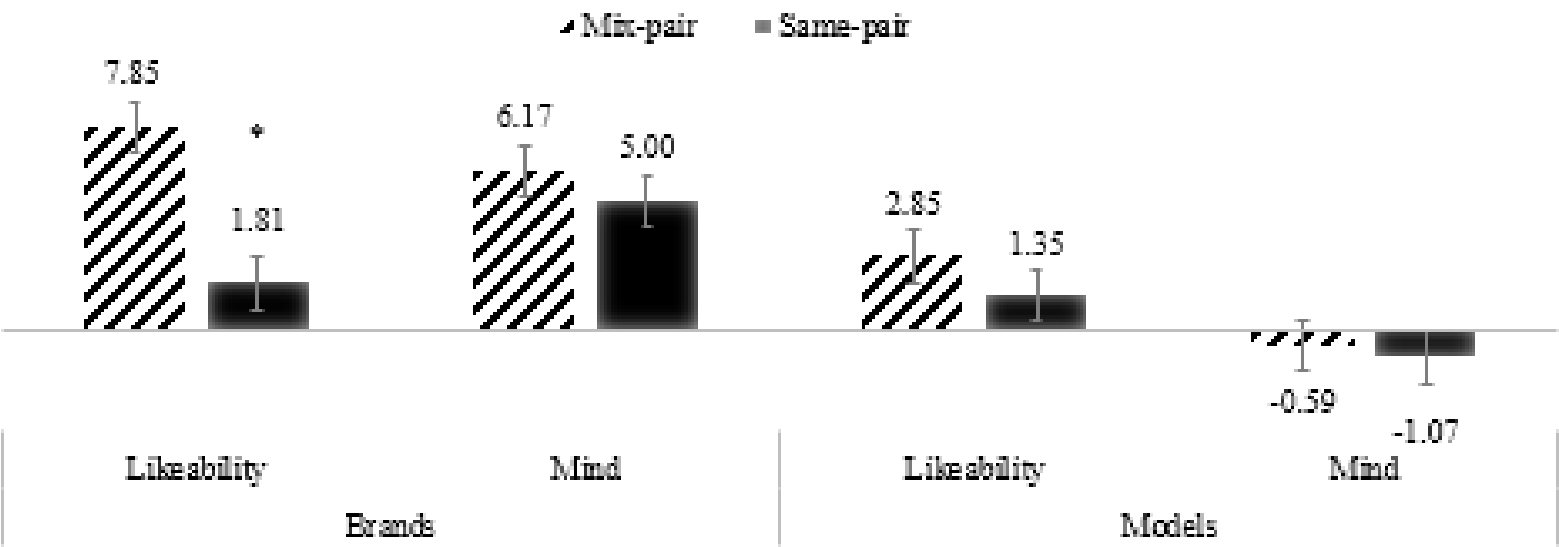
Only effects directly related to our hypothesis are described in the text, the remaining is in the Appendix B.

The triple “Pairing $\times$ Target $\times$ Attribute” interaction was marginally significant ($F(1,5688)=3.34, p < .07$). Results supported H1a: brands gained in likeability after being paired with models rather than with other brands (see

Figure 2; means, standard errors and pairwise comparison are represented in Table 1). We do not confirm our H1b hypothesis: brands were not perceived as more mindful after being paired with models rather than with other brands (Figure 3).

For models the differences in likeability and mind ratings across pairing conditions were not statistically significant (see Table 1 for statistics). The direction of results indicates unsuspected increase in likeability of models after being paired with brands rather than other models (contrary to H2a, Figure 2). However, the drop in mind ratings of models after being paired with brands (vs other models) was in the predicted direction (H2b, Figure 2).

Figure 2. Changes (Means and SE's) in Likeability and Mind ratings after the Pairing procedure



Note: * denotes significant difference at the $p<.05$

Table 1. Means, standard errors, and pairwise t-test with associated level of significance for Study 1.

Study 1	Attribute	Likeability			Mind		
		Mix-pair M (SE)	Same-pair M (SE)	t (p)	Mix-pair M (SE)	Same-pair M (SE)	t (p)
	Pairing Condition						
Target	Brand	7.76 (1.10)	1.81 (1.17)	3.75 ($<.01$)	6.08 (1.10)	4.93 (1.17)	0.72 (= .49)
	Model	2.76 (1.10)	1.35 (1.16)	0.89 (=.37)	-0.68 (1.10)	-1.07 (1.16)	0.24 (= .08)

Note: Heteroscedasticity was examined with both Q-Q normality plots and Test Glejser; and both indicators suggest that there is no significant violation of the normality of residuals permitting LMM analysis (Garson, 2012)

In Study 1 we found support for the H1a hypothesis. Specifically, we find transfer of likeability from models to brands. However, the remaining hypotheses did not reach the significance level, although the patterns of results are encouraging. This could be due to the procedure itself. The order of presentation of pairs was fully randomized in both mix (brand-model) and same-pairs (brand-brand and model-model pairs) conditions. Since the same-pairs appeared one after another randomly, it could potentially mislead participants to create links between pairs of brands and pairs of models in the same-pair condition as well and lead to the sequential conditioning (Lascelles & Davey, 2006). In Study 2 we establish an improved unambiguous procedure for the same-pairing condition and increase the number of participants in order to increase power.

Study 2

Design and Procedure

In Study 2, we improved the procedure by making a more distinguishing difference between the Pairing conditions. Specifically, to reduce the possibility that participants make accidental links between brand-brand and model-model pairs in the same-pairs conditions, we created two clearly distinct blocks with counterbalanced order of presentation. Some participants were first exposed to all brand-brand pairs, and then to all model-model pairs, and others first saw model-model pairs followed by brand-brand pairs. Stimuli order within each block remained fully randomized. Everything else remained the same as in Study 1 (see Study 1 Design and Procedure for details).

Participants. Three hundred eleven participants (159 “female”, 150 “male”, 2 “other”, $M_{age}=34.82$) recruited via ‘Prolific Academic’ completed the survey for a small remuneration. Participants’ age and gender did not have a significant effect and were excluded from further analysis. The distribution of participants across pairing conditions was not statistically different (168 in mix-pair and 143 in same-pairs, $\chi^2=2.10$, $p = .16$).

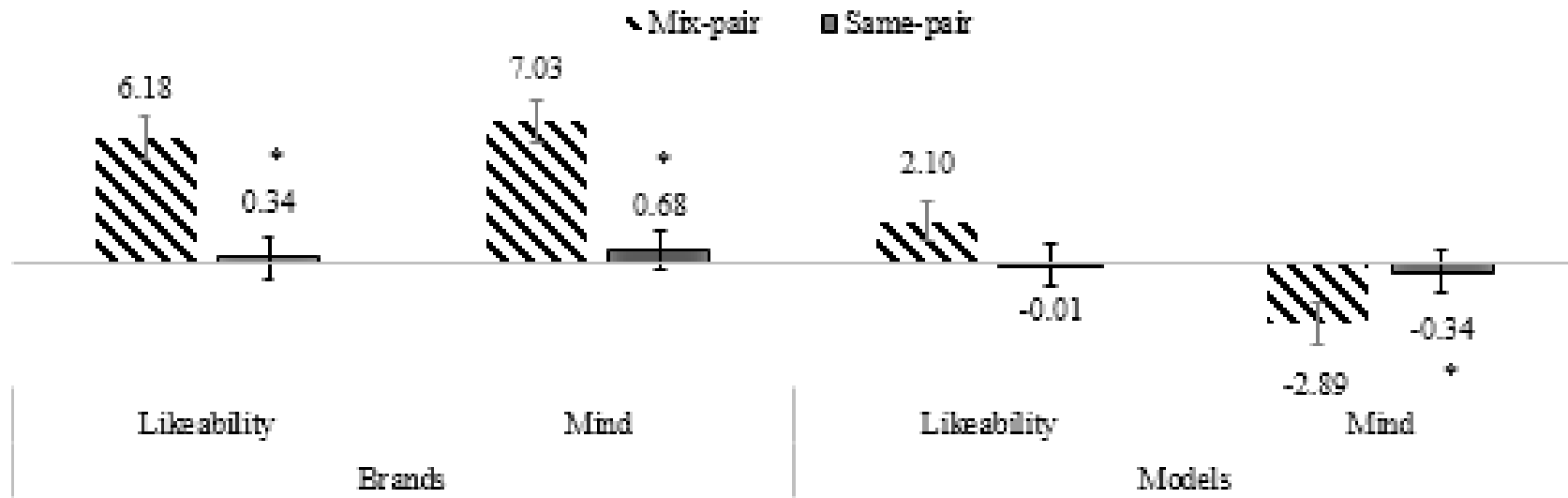
Results and Discussion

Dependent Measures and Analysis. As previously we calculated difference scores: for likeability ($D\text{-Like} = \text{Like}_{\text{after_pairing}} - \text{Like}_{\text{before_pairing}}$) and for mind ($D\text{-Mind} = \text{Mind}_{\text{after_pairing}} - \text{Mind}_{\text{before_pairing}}$). We ran a linear mixed model (LMM) using SPSS (version 25) with Target (-1: brands and 1: models), Attribute (likeability and mind), Pairing (-1: mix-pair and 1: same-pair) and their interaction terms as fixed effects. As before, to account for the variability induced by participants ($ICC = 0.2$) we treated them as a random factor (Heck, Thomas & Tabata, 2010). The variability induced by the stimuli ($ICC = 0.01$) was under the recommended threshold of 0.05 thus not included in a model as a random factor (Heck, Thomas & Tabata, 2010).

As before the triple “Pairing $\times$ Target $\times$ Attribute” interaction was significant ($F(1,9944) = 12.39, p < .01$, see Table 2). Results supported the H1a hypothesis: brands gained in likeability after being paired with models rather than with other brands (see Figure 3 and Table 2 for means, standard errors and pairwise comparison). Results also supported the H1b hypothesis: brands were perceived as more mindful after being paired with models rather than with other brands (Figure

3). With regards to models, results did not support the H2a hypothesis. There was no decrease in likeability of models after being paired with brands (vs models, see Figure 3, Table 2). The H2b hypothesis was supported: the drop in mind ratings was greater when models were paired with brands (vs models; see Figure 3, Table 2).

Figure 3. Changes in ratings before and after pairing procedure confirming significant increase in likeability (H1a) and mind (H2b) for brands, and only the drop in mind ratings of models (H2b).



Note: * denotes significant difference at the $p < .05$

Table 2. Means, standard errors, pairwise t-tests with associated level of significance for the Study 2.

Study	Attribute	Likeability			Mind		
		Pairing Condition		t (p)	Pairing Condition		t (p)
		Mix-pair M (SE)	Same-pair M (SE)		Mix-pair M (SE)	Same-pair M (SE)	
2	Brand	6.18 (0.86)	0.34 (0.93)	4.59 (<.01)	7.03 (0.86)	0.68 (0.94)	4.98 (<.01)
	Model	2.11 (0.86)	-0.01 (0.94)	1.67 (=.09)	-2.89 (0.86)	-0.34 (0.94)	-2.01 (=.04)

Note: Heteroscedasticity was examined with both Q-Q normality plots and Test Glejser; and both indicators suggest that there is no significant violation of the normality of residuals permitting LMM analysis (Garson, 2012)

General Discussion

Marketers are encouraged to use people for advertisement. Twenty years ago the trend was using celebrity endorsers (Stout & Moon, 1990), and today this practice expanded on brand employees and even brand consumers (Dreher, 2014; Fisher-Buttinger & Vallaster, 2008; Jacobs, 2003; Raj Devasagayam, Buff, Aurand, & Judson, 2010). Brands can benefit in many ways from this tactic. Advertising photos containing a human face can more easily attract attention (Sajjacholapunt & Ball, 2014). More importantly, a brand can benefit by acquiring evaluative properties such as likeability and maybe even non-evaluative attributes such as personality (Fleck et al., 2014; Kanungo & Pang, n.d.; Miller & Allen, 2012). In particular this tactic of brand humanization is frequently recommended by mainstream managerial media since it can lead to numerous benefits such as improved brand perceptions, and brand loyalty (Aggarwal & McGill, 2007; Chandler & Schwarz, 2010; Council, 2018.; Perry, 2018).

However, when it comes to effects that brands have on people associated with them, findings are very modest and suggest a less positive outcome. While the literature regarding conditioning is silent when it comes to changes in perception

of people (US) after pairing with brands (CS), the literature on mind attribution or anthropomorphism suggests that decreased mind perception of people might occur (Epley et al., 2013). Recently it has been found that brand positioning can indeed have negative effects on perception of humanness for brand employees (Henkel et al., 2017). Our aim was to examine the extent to which mind ascription to brands is interwoven with lack of mind attribution to models- a suggestion lacking empirical support (Waytz, Epley, et al., 2010).

Our results replicate previous findings and indeed find that pairing a brand with a model (vs a brand) can lead to increased likeability (H1a, Study 1 & 2) and increased mind perception (H1b, Study 2).

We hypothesized that the brand-model pairing (vs model-model pairing) will have the inverse, negative consequences for perception of models i.e. decreased likeability (H2a) and mind (H2b).

While we find that there is a significant drop in mind perception of models after being repeatedly paired with brands (vs models, H2b) we do not find that it undermines their likeability. Within the broader context of research on dehumanization, research has shown that denial of human uniqueness or human

nature isn't always detrimental for the target (Martínez et al., 2015). That is, respondents do not reject interactions with a dehumanized target in some contexts (e.g. approaching animal-like group in a party, or working with robot-like groups Martínez et al., 2015). It could be that decreased mind perception of models in the context of advertisement is appropriate and not harmful to the point of disliking the person. Another possibility is that some quality from the brand was transferred to the person. Recently it has been shown that the transfer of properties is possible when both CS and US are people: perception of person's athleticism increases after being paired with a photo of another person doing sport (Förderer & Unkelbach, 2012). It could be that models gained in object-likeness, which in an advertisement context represents an appealing quality. Despite the limitation of chosen measures, the finding that seemingly harmless advertisement (simple presentation of a brand next to the model) decreases mind perception is a novel one.

From the perspective of evaluative and non-evaluative transfer, it is also interesting to explore what happens to the US after the pairing procedure, since this question has so far been neglected (for a notable exception, see Mierop, Bret, Yzerbyt, Dumas, & Corneille, under review). To our best knowledge, the present

studies constitute the first evidence (1) that not only the conditioned response but also the (non-evaluative) unconditioned response is changed through a conditioning procedure, and (2) that two responses can be changed in a dissociative pattern. So far it is known that changes in CS after the conditioning procedure are robust and long-term (Sweldens, Van Osselaer, & Janiszewski, 2010). It remains to be explored how long are these effects for the US.

Ethical implications of these findings are thought-provoking since there is a decrease in mind perception of models paired with brands but no decrease in their likeability. Thus, one might argue that there is no overall damage for the perception of the model. However, a wider review suggests that there is an important role on ascribing low mind to the person like treating the person like commodity (Harris, Lee, Capetany, & Cohen, 2014) or lack of empathic responses (Harris & Fiske, 2006).

Willingly or not, the public is frequently exposed to faces and logos on billboards, print ads, or more recently online banners. Eager to understand what traits a person has to have in order to benefit the brand, researchers neglected to focus on consequences such pairing has on a person. Today when everyone is a potential

model, it looks like a question worth exploring. Social media allows people to gain their living by testing and recommending products and brands, and this profession of “social influencers” keeps rising (Freberg, Graham, McGaughey, & Freberg, 2011). In the last five years, people became more curious about it as suggested by an increase in searching the term « social influencer » from 2 to 79 times per week across the globe, according to Google Trends. This is especially easy to spot on Instagram - the fastest growing photo-based social media platform (Veirman, Cauberghe, & Hudders, 2017). Users of Instagram have the opportunity to share their lives through a series of pictures. As mentioned, savvy users found a way to make a profession out of this hobby, by posting photos of themselves with branded products (Freberg et al., 2011). In order to protect naïve consumers from potentially disguised advertisement, regulations imposed a disclaimer in case of paid sponsorships (Boerman, Willemsen, & Van Der Aa, 2017). Our findings invite discussion regarding the regulations that can protect not only consumers, but also these individuals from potentially deleterious consequences of their profession.

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Appendix A

Instrument: In the Phase 1 and 3 photos appeared one by one with a question above and the slider bar underneath the stimuli. All photos were pre-tested (see Appendix C).

Directions:	The experiment follows three parts. You will receive instructions before starting each of these parts. It is normal that some parts seem repetitive.
Phase 1: Before Treatment Evaluations	We are interested in your perceptions of the photos that will be displayed on the screen. For each photo slide the bar below. To what extent would you say that this person[brand] appears to have a MIND From 0 "definitely not" to 100 "definitely yes" To what extent would you say that you LIKE this person [brand] From 0 "definitely not" to 100 "definitely yes"
Phase 2: Treatment	The next component of this study deals with visual perception. For this purpose you will be presented with pairs of pictures that will appear on the screen. Please look at them carefully. The visual perception task will take approximately 2.5 minutes. It is VERY IMPORTANT that you pay close attention to the picture pairs throughout the entire task.
Phase 3: After Evaluations	When you are ready to start please click on START. We are interested in your perceptions of the photos that will be displayed on the screen. For each photo slide the bar below. To what extent would you say that this person[brand] appears to have a MIND From 0 "definitely not" to 100 "definitely yes" To what extent would you say that you LIKE this person [brand] From 0 "definitely not" to 100 "definitely yes"

Stimuli:

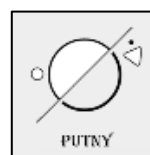
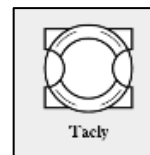
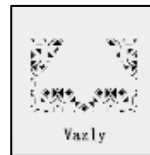
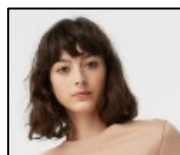
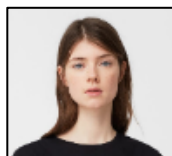
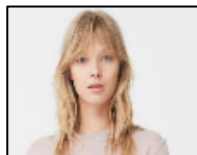
8 Photos

Of Models

&

8 Photos

Of Brands



Appendix B

In both studies we run a linear mixed model (LMM) using SPSS (version 25) with Target (-1: brands and 1: models), Attribute (likeability and mind), Pairing (-1: mix-pair and 1: same-pair) and their interaction terms as fixed effects. Participants were treated as random factor given that their variability was significant (Study 1: ICC= 0.15, Study 2: ICC=0.2). However, the variability induced by stimuli was under the recommended threshold (Study 1: ICC=0.02, Study 2: ICC=0.01) thus it was not included as a random factor (Heck, Thomas & Tabata, 2010). Analysis regards changes in likeability and mind ratings before and after the procedure (i.e. D-Like and D-Mind), additionally we report means and standard errors of brands and models before and after the pairing procedure in the Table 1.

Table 1. Means and standard errors of brands and models before and after the conditioning procedure

		Likeability		Mind	
Study 1		Before Pairing	After Pairing	Before Pairing	After Pairing
		<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>
Target	Brands	34.16 (1.72)	39.17 (1.81)	29.26 (1.91)	34.85 (2.03)
	Models	62.57 (1.54)	64.72 (1.53)	78.25 (1.73)	77.42 (1.69)
		Likeability		Mind	
Study 2		Before Pairing	After Pairing	Before Pairing	After Pairing
		<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>
Target	Brands	40.95 (1.15)	44.45 (1.28)	36.07 (1.44)	40.18 (1.48)
	Models	59.81 (1.13)	60.94 (1.17)	73.24 (1.38)	71.52 (1.27)

Results

We report all effects that are not in the main text because they do not relate directly to our hypothesis. All fixed effects are presented in the Table 2. Patterns of results are the same across two studies suggesting that the lack of significance in Study 1 is probably due to its underpower.

Table 2. Fixed effects across two studies.

Fixed effects	Study 1				Study 2			
	df1	df2	F	p	df1	df2	F	p
Target	1	5688	77.83	<.001	1	9944	109.536	<.01
Attribute	1	5688	4.61	=.03	1	9944	7.93	<.01
Pairing	1	5688	2.89	=.09	1	9944	7.13	<.01
Target x Pairing	1	5688	6.55	=.01	1	9944	73.71	<.01
Target x Attribute	1	5688	12.55	<.01	1	9944	19.69	<.01
Attribute x Pairing	1	5688	7.95	=.01	1	9944	8.07	<.01
Target x Attribute x Pairing	1	5688	3.34	=.07	1	9944	12.39	<.01

In both studies the changes in responses was greater for Brands (Study 1: $M_{\text{Brands}} = 5.15$, $SE_{\text{Brands}} = 0.72$; Study 2: $M_{\text{Brands}} = 3.55$, $SE_{\text{Brands}} = 0.74$) rather than Models (Study 1: $M_{\text{Models}} = 0.59$, $SE_{\text{Models}} = 0.72$; Study 2: $M_{\text{Models}} = -0.28$, $SE_{\text{Models}} = 0.58$). The changes in likeability ratings (Study 1: $M_{\text{D-Like}} = 3.42$, $SE_{\text{D-Like}} = 0.73$; Study 2: $M_{\text{D-Like}} = 2.15$, $SE_{\text{D-Like}} = 0.58$) were greater than the changes in mind ratings (Study 1: $M_{\text{D-Mind}} = 2.31$, $SE_{\text{D-Mind}} = 0.73$; Study 2: $M_{\text{D-Mind}} = 1.21$, $SE_{\text{D-Mind}} = 0.58$). The difference in ratings occurring in mix-pair condition (Study 1: $M_{\text{mix-pair}} = 3.94$, $SE_{\text{mix-pair}} = 0.92$; Study 2: $M_{\text{mix-pair}} = 3.10$, $SE_{\text{mix-pair}} = 0.74$) was greater than in same-pair condition (Study 1: $M_{\text{same-pair}} = 1.76$, $SE_{\text{same-pair}} = 0.97$; Study 2: $M_{\text{same-pair}} = 0.16$, $SE_{\text{same-pair}} = 0.81$).

The Pairing $\times$ Target interaction was significant (Study 1: $F(1, 5688) = 6.55$, $p = .01$; Study 2: $F(1, 9944) = 73.71$, $p < .01$). The positive change in perception of brands was significant after their pairing with models (Study 1: $M_{\text{mix-pair}}=6.92$ $SE_{\text{mix-pair}} = 0.98$; Study 2: $M_{\text{mix-pair}}=6.60$ $SE_{\text{mix-pair}} = 0.78$) rather than other brands ($M_{\text{same-pair}}=3.37$ $SE_{\text{same-pair}}= 1.04$, $t(5688) = 5.68$, $p = .01$; Study 2: $M_{\text{same-pair}}=0.51$ $SE_{\text{same-pair}}= 0.85$, $t(9944) = 5.25$, $p < .001$). For models the differences in ratings across pairing conditions were not statistically significant (Study 1: $M_{\text{mix-pair}}=1.04$

$SE_{\text{mix-pair}} = 0.98$ vs $M_{\text{same-pair}} = 0.14$ $SE_{\text{same-pair}} = 1.04$; $t(5688) = 0.92$, $p = .52$; Study 2: $M_{\text{mix-pair}} = -0.39$ $SE_{\text{mix-pair}} = 0.85$ vs $M_{\text{same-pair}} = -0.17$ $SE_{\text{same-pair}} = 0.85$; $t(9944) = -0.18$, $p = .85$).

The Target x Attribute interaction revealed that for brands the difference in changes of likeability and mind was not different (Study 1: $M_{\text{D-Like}} = 4.78$, $SE_{\text{D-Like}} = 0.81$ vs $M_{\text{D-Mind}} = 5.51$, $SE_{\text{D-Like}} = 0.81$; Study 2: $M_{\text{D-Like}} = 3.26$, $SE_{\text{D-Like}} = 0.63$ vs $M_{\text{D-Mind}} = 3.85$, $SE_{\text{D-Like}} = 0.63$).

For models there was an unexpected divergence: an increase in liking and decrease in mind ratings (Study 1: $M_{\text{D-Like}} = .70$, $SE_{\text{D-Like}} = 0.98$ vs $M_{\text{D-Mind}} = 1.93$, $SE_{\text{D-Like}} = 1.03$; Study 2: $M_{\text{D-Like}} = 1.05$, $SE_{\text{D-Like}} = 0.63$ vs $M_{\text{D-Mind}} = -1.61$, $SE_{\text{D-Mind}} = 0.63$).

The Attribute x Pairing interaction revealed that changes in likeability ratings in mix pair condition were higher (Study 1: $M = 5.26$, $SE = 0.98$; Study 2: $M = 4.16$, $SE = 0.78$) than in same-pair condition (Study 1: $M = 1.58$, $SE = 1.03$; Study 2: $M = 0.16$, $SE = 0.85$). The changes in mind ratings across pairing conditions were not different (Study 1: $M_{\text{mix-pair}} = 2.70$, $SE_{\text{mix-pair}} = 0.98$ vs $M_{\text{same-pair}} = 1.93$, $SE_{\text{same-pair}} = 1.03$; Study 2: $M_{\text{mix-pair}} = 2.06$, $SE_{\text{mix-pair}} = 0.78$ vs $M_{\text{same-pair}} = 0.17$, $SE_{\text{same-pair}} = 0.85$).

Appendix C

Pre-test

Stimuli selection. To ensure that any observed change in liking and mind ratings is due to the pairing procedure and not due à priori variations from the stimuli, we pre-tested and selected photos that correspond to needed criteria. Specifically, we created two sub-samples of photos (i.e. one of brands and one of models). We ensured that within the sample of brands, there is no differences in liking and mind ratings before the procedure. Likewise, we ensured that models within the sample of models do not differ on mind and liking measure before the conditioning procedure. Initial sample of 16 fictive brands was created with use of free websites that generate random brand names (5-7 letters) and random logos. Initial sample of 16 photos of female models was chosen from the free database of models looking at the camera with a neutral/natural looking make-up (because strong makeup can be perceived negatively Fabricant & Gould, 1993).

Participants

Twenty-nine respondents (13 female, $M_{\text{age}}=33.38$, $SD=12.65$) recruited from the online pool (Prolific Academic) completed the questionnaire for a small

remuneration. Age and gender were not significant thus were dropped from the analysis.

Design and procedure

We used a 2 (Target: Brands, Persons) by 3 (Ratings: Mind, Like, Appeal) within participants design. Participants were randomly exposed to 32 photos and were asked to move a slide bar (0 "definitely not" to 100 "definitely yes") and rate each photo on three measures (To what extent would you say that you LIKE this brand [person]; To what extent would you say that this person [brand] appears to have a MIND; To what extent would you say that you find this brand [person] APPEALING). The scale was adapted from Morewedge, Preston, and Wegner (2007).

In the pre-test we included a measure of the appeal to additionally ensure that brands and models within their designated subsamples do not vary with regards to appeal. Because, the liking and appeal measures were almost redundant ($r(29)=.83$, $p < .01$), and liking has more evaluative connotation than appeal, in further studies we kept only the liking measure. Liking and mind were moderately correlated ($r(29)=.64$, $p < .01$), as well as mind and appeal ($r(29)=.54$, $p < .01$). We run

repeated measures ANOVA with Photos (16 of Brands or 16 of Persons) and 3 measures (Like, Mind, Appeal) as within factors.

Brands. The main effect of Photos was not significant $F(1, 28) = 0.39, p = .84, \eta^2 = .001$, the main effect of Attribute was marginally significant ($F(2, 27) = 3.02, p = .07, \eta^2 = .18$) as well as the Photos by Attribute interaction ($F(1, 28) = 5.06, p = .03, \eta^2 = .15$). Post hoc tests using the Bonferroni correction yielded significant differences in liking and appeal ratings of several brands (B1, B8, B12, B15) so they were excluded from the sub-sample (see Table 3). There were no differences in mind perception of the brands.

Table 3. Means and standard deviations on three attributes of initial sample of 16 photos of brands.

Target Brands	Likeability		Mind		Appeal	
	M	SD	M	SD	M	SD
B1*	24.37*	20.53	20.27	20.56	31.59	26.16
B2	32.72	23.82	25.79	25.62	39.90	25.06
B3	40.52	26.21	30.55	28.34	38.93	27.11
B4	33.90	26.25	32.37	28.74	39.00	28.92
B5	36.17	23.91	33.41	28.74	38.31	22.87
B6	34.72	27.43	29.59	28.62	32.93	29.03
B7	40.93	28.74	36.07	32.73	45.21	32.03
B8*	39.69*	23.93	33.76	29.67	45.21	25.40
B9	28.41	24.25	25.59	25.89	27.86	24.49
B10	35.69	22.00	32.21	25.53	35.97	24.59
B11	36.93	24.65	30.21	28.33	37.76	26.77
B12*	26.10	24.17	27.00	26.73	24.72*	21.70
B13	28.31	22.04	29.03	27.88	32.07	23.76
B14	34.31	25.97	27.66	25.41	32.03	26.74
B15*	42.62*	25.18	33.38	26.48	51.31	28.27
B16	32.79	23.28	30.21	28.57	31.41	21.89

Models. The main effect of Target was not significant $F(1, 28) = 0.39, p = .84, \eta^2 = .001$, the main effect of Attribute was significant ($F(2, 27) = 8.16, p = .03, \eta^2 = .37$). Post hoc Bonferroni correction revealed that mind scores (73.11 ± 23.5) compared to liking (62.18 ± 20.74) and appeal ratings (65.32 ± 20.95) were significantly higher ($p = .02$, and $p < .01$ respectively). The Photos x Attribute interaction was significant as well ($F(1, 28) = 3.89, p = .05, \eta^2 = .12$). Several models (P5, P6, P14, P15, P16) differed from others on measures of liking and appeal so they were excluded from the sub-sample (see Table 4). There were no differences in mind ratings among models (Table 4).

Table 4. Means and standard deviations on three measures of initial sample of 16 photos of models.

Target Models	Likeability		Mind		Appeal	
	M	SD	M	SD	M	SD
P1	58.66	22.43	68.97	28.58	63.41	22.33
P2	63.31	22.24	77.07	19.05	68.24	22.00
P3	64.41	20.26	74.21	25.15	70.66	20.56
P4	64.72	21.10	71.34	23.68	65.90	22.47
P5*	54.79*	18.91	68.45	26.09	48.93*	19.26
P6*	64.03	24.89	69.72	29.81	71.79*	22.53
P7	66.69	19.20	76.79	18.11	68.34	19.06
P8	64.52	20.71	72.00	23.85	66.72	21.91
P9	60.83	19.73	73.79	21.83	64.31	18.03
P10	60.83	24.99	75.79	24.61	62.14	22.50
P11	62.90	20.88	72.83	22.69	65.21	19.79
P12	56.38	20.16	77.24	18.89	59.21	27.98
P13	58.93	23.25	69.93	25.09	62.41	21.70
P14*	55.28*	21.01	67.59	26.36	52.52*	23.76
P15*	68.17*	16.81	76.66	22.77	67.28	17.14
P16*	68.93*	15.30	77.38	19.46	74.34*	14.22

After excluding those photos that were significantly different from others within the subsample, we randomly chose 16 (8 of brands and 8 of persons). Final sample used in studies is in the Appendix A.

Appendix D

Pre-registration form.

As Predicted: "*semantic conditioning*" (#6036)

Created: 10/10/2017 02:18 AM (PT)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

We propose that ascribing human characteristics to nonhuman entities and disavowing them from humans are two instantiations of the same process. The former is called anthropomorphism, and the latter is known as dehumanization.

We argue that they can co-occur, especially when a human and a non-human entity are presented together. To test this hypothesis, we relied on a conditioning procedure in which a human (person) and a non-human (brand) entity are visually paired with either entity of the same type (Person-Person /Brand-Brand pairings) or with a different type (Person-Brand pairings).

We plan to measure attribution of humanness and liking of both entities before and after the procedure.

Main hypothesis is regarding the conditioning procedure with different types (Person-Brand pairing) where we expect to observe decrease in attribution of humanness to the person (dehumanization) and an increase for the brand (anthropomorphism). We expect that liking measure follows the same pattern but does not account for the former effect.

3) Describe the key dependent variable(s) specifying how they will be measured.

We have two dependent variables: the attribution of humanness and liking of both entities, measured before and after the conditioning procedure. Participants will be asked to slide the bar from 0 “Definitely not” to 100 “Definitely yes” in order to indicate to what degree the target appears to have a mind and how much they like the target.

4) How many and which conditions will participants be assigned to?

Overall we have 2 (Pairing: Same vs Different) x 2 (Target: Person vs Brand) x 2 (Measure: Before vs After) factor design, whereas the first is a between participant and the last two are within participants factors.

Participants will be randomly assigned to one of 8 conditions.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

We will use linear regression analyses to determine if differences in before-after Mind & Liking ratings (dmind and dlike) are moderated by pairing type of the two targets (see following formula).

$$\text{dmind} = b_0 + b_1 \text{ Target} + b_2 \text{ Pairing} + b_3 \text{ Target*Pairing}$$

$$\text{dlike} = b_0 + b_1 \text{ Target} + b_2 \text{ Pairing} + b_3 \text{ Target*Pairing}$$

The two critical betas are the b3s. We expect an increase for the Brand, and a decrease for the Person.

6) Any secondary analyses?

We will also run the same analysis while controlling for correlation between the two DVs.

We will also perform mixed model analysis with participants and stimuli as random effects .

7) How many observations will be collected or what will determine sample size?

No need to justify decision, but be precise about exactly how the number will be determined.

We need 189 subjects to obtain a statistical power of .95 with an a priori estimated (small) effect size of $\eta^2 = .04$. To accommodate potential data loss we will collect on 200 participants.

8) Anything else you would like to pre-register?

(e.g., data exclusions, variables collected for exploratory purposes, unusual analyses planned?)

We will exclude participants who do not finish the questionnaire until the end.

Data collection will start the 10th of October at 12h00.

If you click the red button you will make this pre-registration public, creating a permanent .pdf document that will be viewable by anyone who knows its URL. The .pdf is also copied to the web-archive (<https://web.archive.org/>), a permanent archive outside our control. Making a pre-registration public is a permanent non-reversible decision. We recommend you discuss with co-authors first, and that you make the pre-registration public after the paper containing the relevant study has been accepted for publication. Before publication you probably want to create an anonymous .pdf to share with reviewers.

General conclusion

Our principal motivation was to bring dehumanization into the marketing realm and make it a cross-disciplinary topic. We also wanted to bridge the gap in the literature regarding the question of complementarity between the anthropomorphism and the dehumanization. The idea that these two phenomena are interwoven is not a novel one, it existed in the literature for a very long time, however, it remained only as a suggestion without a deeper elaboration (Kwan & Fiske, 2008; Waytz, Epley, & Cacioppo, 2010). Within this dissertation we first tried to map instances in which both phenomena can occur, provide answers regarding the underlying mechanism and test the extent to which they are intrinsically related.

Contributions to Social Psychology and Marketing

Prior research showed that humanness is a very large concept that englobes a vast range of qualities: personality traits such as intelligence, cognitive flexibility, sophistication, curiosity, joyfulness; basic emotional responsiveness as well as complex secondary emotions or feelings; a mind that is capable to experience previously described internal states and acts upon desires, beliefs, intentions and

even potential needs for self-fulfilment (Bain, Vaes, & Leyens, 2013; H. M. Gray, Gray, & Wegner, 2007; N. Haslam, 2004; Kofta et al., 2013; Vaes, Bain, & Leyens, 2013). Richness in understanding what constitutes humanness comes from the diversity of implicit and explicit theories people have about other humans and social world (Haslam 2004; Kofta et al., 2013; Touré-Tillery & McGill, 2015).

These information are stored in the homocentric pool of knowledge and can be applied to non-human entities such as products and brands (Puzakova, Kwak, & Andras, 2010). Explicitly imbuing objects with humanlike features successfully activates the homocentric pool (Aggarwal & McGill, 2007; Puzakova et al., 2010). Simultaneously, humanness can be withheld from the representatives that literately embody this concept-people (Haslam, 2006). Explicitly presenting a person in a sexualized manner, evoking inter-group belongingness or direct comparison with a machine or an animal leads to dehumanization and does not fully activate the concept of humanness (K. Gray, Knobe, Sheskin, Bloom, & Barrett, 2011; Martínez, Rodríguez-Bailón, & Moya, 2012).

We wanted to expand these results and understand the boundaries of anthropomorphism and dehumanization beyond explicit presentation of objects as

humanlike and explicit presentation of people as lacking humanness. Likewise, we wanted to verify whether an advertisement can be a suitable context for exploring the intersection of anthropomorphism and dehumanization. The findings of the first essay contribute to this issue and provide evidence that dehumanization has a place in marketing literature and a cross-disciplinary value. We map a wide range of objects (i.e. smartphone, shampoo, fictional and real brands) that can be anthropomorphized by a mere presence of a person. The exception for this subtle manipulation of anthropomorphism is a low functional product such as a popsicle. This is far from an exhaustive list of boundary conditions, however, it provides an idea regarding the type of products and brands which can simply use a model in advertisings, and those that have to work harder on the visual imagery to achieve the same effect.

We also find that virtually anyone, regardless of person's skin tone, gender or even fame, as we find in the second essay, can be dehumanized due to the mere presence of an object. This is a novelty for both social psychology as well as the marketing literature and has important theoretical as well as practical implications. Our contribution to the theory is the proposition to link dehumanization with

anthropomorphism at the level of the social cognition. In our second essay we propose and test that activation and inhibition of humanness are the underlying mechanisms of anthropomorphism and dehumanization, respectively. For anthropomorphism this assumption is not a new one, scholars consensually agree that activation of the homocentric pool of knowledge is the cognitive basis of this phenomenon (Epley, Waytz, & Cacioppo, 2007; Puzakova et al., 2010). However, when it comes to the question of underlying mechanisms of dehumanization the state of the art is more complicated. First focus was on determining which of many facets of humanness can be denied to a person. Initial discovery of everyday dehumanization was regarding the infrahumanization, that is, the lack of ascription of secondary emotions to out-groups (Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007). Later the scope extended to denial of traits that are evocative of the human nature and of the human uniqueness (Haslam, 2006). Simultaneously it became evident that even a mind can be denied to individuals (Waytz, Hoffman, & Trawalter, 2014). The cognitive basis of dehumanization was a secondary issue. However, those that do tackle this issue converge toward the idea that the concept of humanness is not fully activated in certain situations when we encounter other

people (Boccatto, Cortes, Demoulin, & Leyens, 2007; Gervais, Bernard, Klein, & Allen, 2013; Goff, Eberhardt, Williams, & Jackson, 2008; Loughnan et al., 2010). Our findings from the second essay contribute and built upon this literature, since our results show that mere presence of the product can inhibit the full ascription of humanness to a person. The only exempt when this was not the case, was when a person was depicted as a sexual object (Study 5, Essay 1). We provide some evidence that respondents have more difficulties in describing a person's attributes when a product is presented aside (Post-Test, Essay 2). This we interpret as an indication that it is more difficult to access a humanness database. We also tried to exclude other potential mechanisms, and we show that consumption associations are not leading dehumanized perceptions, which can be the case (see Henkel, Boegershausen, Hoegg, Aquino, & Lemmink, 2018). Another potential mechanism was the contamination or attribute transfer which implies the possibility that a brand and a person interchange attributes (McCracken, 1989; Miller & Allen, 2012; Nemeroff & Rozin, 1989). Results regarding this issue are less conclusive and would need further empirical examination. We do not find support that a person gains in object-like attributes such as functionality, before or after being

dehumanized. That is, we do not find that pairing a person with an object compared to the presentation of the person alone results in perception of greater functionality of the person leading to dehumanization. Similarly, dehumanized perception resulting from the pairing do not lead to increased attribution of functional properties to the person.

In our third essay we tried to more directly test the transfer of properties with an adapted methodology. We also strived to examine the extent to which anthropomorphism and dehumanization are intrinsically intertwined. Relying on a conditioning procedure, our findings suggest that transfers of evaluative (i.e. likeability) and non-evaluative (i.e. mind) properties occur when the brand is repeatedly presented with a model. Specifically, we find that brands gain in likeability and mind ratings after being repeatedly paired with models (vs other brands) and we find that models lose mind after being repeatedly paired with brands (vs other models). However, we do not find that this loss is followed by consequent devaluation of the model. One possibility is that models gained in some symbolic attribute after being paired with a brand which can curb against deleterious evaluations. Previous finding that there is no transfer of the

functionality, doesn't exclude the possibility that some other, higher-order, more abstract quality of the brand can be transferred to the person. Although more evidence suggests that dehumanization occurs due to inhibition of the homocentric pool of knowledge, it doesn't necessarily exclude the possibility of the two mechanisms to occur as well. It is conceptually possible that activation or suppression of the knowledge database occurs first, and then the reconceptualization of the target entity occurs through creation of new conceptual links and relations. Afterall, cognitive system is extremely complex and flexible and there are still many enigmas about cognitive processes regarding the organization and conceptualization of the social world.

When it comes to managerial contributions, we provide simple guidelines for practitioners. Brand managers who do not wish to create anthropomorphic humanlike spokes-characters, or use other explicit anthropomorphizing techniques, don't have to give up completely from brand humanization. They can still harness some positive attitudes by simply using a photo of a person next to their brand. Although this might not work for products and brands low in functionality (e.g.

popsicle), for a wide range of other products (e.g. cosmetics, stationery tools) this is enough.

Models, brand ambassadors and other individuals eager to present and promote brands should probably be more careful. Evidence from our 11 studies cumulatively suggest that posting photos of a person with a product is not the best idea and can lead to dehumanization. In this thesis we focus only on photo-based advertisements. Brand ambassadors are not limited to this medium, thus they can stay “protected” as long as they use other types of promotional material, such as videos.

Limitations and Future research

As always, some findings bring more questions than answers. Existing literature and our findings suggest that almost everything can be anthropomorphized and that everyone can be dehumanized. The easiness of occurrence of these phenomena on a purely cognitive basis is stunning. However, we still lack a more conclusive understanding about what is happening on a cognitive level. Tapping into cognitive processes is difficult, but we hope that this thesis motivates future research on this subject.

We speculated that sociality and effectance motivation have similar effects on anthropomorphism and dehumanization. Both phenomena occur when these needs are amplified (Bartz, Tchalova, & Fenerci, 2016; Waytz, Cacioppo, & Epley, 2010; Waytz & Epley, 2012). Yet, we haven't included these factors in our experiments or elaborated their potential effects on these phenomena in the advertising context. It remains as a topic for the future research.

Another big limitation of this thesis regards the methodology. While objective justifies the means, if besides experiments, questionnaires, and standardized scales, we also employed projective techniques we would stand better chance at triangulating and unveiling “blind spots” that we face now. Although we always left a space for respondents to leave a comment, they would either abstain from it or give comments that are not insightful or related to the topic of the research. Similarly, forcing people to focus either on one entity or another, doesn't allow us to understand how spontaneous perception are formed about advertisements that pair an object with a person. Additionally, it does not allow us to understand the persistence of the effects.

Likewise, we haven't considered the potential effects of the culture, so our findings remain only generalizable for similar population in the US and Europe. Research already found that the understanding of humanness differs between Europeans and Chinese (Bain et al., 2013), and that self-humanization is stronger for Japanese and German (Loughnan et al., 2010). Would this alter our findings remains an open question. For example, does this stronger self-humanization translates also in weaker dehumanization of others? That is, would our subtle manipulation of dehumanization not work with Japanese and German respondents?

With market growth and globalization, advertising and branding evolved, becoming practices potentially applicable to everything and everyone (Levy & Rook, 1999). In 1997, Peters, a marketing and branding mogul published a short letter: "Regardless of age, regardless of position, regardless of the business we happen to be in, all of us need to understand the importance of branding. We are CEOs of our own companies: Me Inc.(...)The good news -- and it is largely good news -- is that everyone has a chance to stand out(...) And like any good marketing brochure, yours needs constant updating to reflect the growth -- breadth and depth

-- of brand You.”. Today in the era of lifestyle bloggers, instagrammers and other ‘social influencers’, it seems that message was received, and the pursuit of self-branding is blooming. Whether it is writing about their feelings, posting photos of dear memories, commenting hot-topics, individuals do not hesitate to expose their lives to the very last detail and a number of them does it in a strategic way (Senft, 2013; Yan, 2011). Human brands are not a novel phenomenon, people formed strong attachment to various public figures (Thomson, 2006). However, not all public figures appreciate being under the spotlight and individuals that enjoy public recognition frequently experience cyber or other types of bullying (Temperley & Tangen, 2006). In this light several promising lines of research might raise. First, how does perception of people as brands relate to perception of their humanness? There are a few ways that branding might undermine person’s humanness. For example, believing that there is a marketing team hired to regulate a person’s image might suggest that a person is a puppet at disposal of marketers without her/his own intentions, beliefs, desires etc. Another possibility is that construing a consistent brand image of a person makes him/her more predictable and reduces perceptions of spontaneity, flexibility, that is human nature.

On the contrary if human brands are not seen as less human than other people, it would be interesting to explore what branding techniques can be used for hedging against practices that do contribute to dehumanization. Human brands like Oprah Winfrey, or Lady Gaga are examples of self-branding gurus who have massive influence and it is difficult to imagine that they would be susceptible to dehumanized perceptions (Huba, 2013; Lorož & Braig, 2015). On the contrary they could be regarded as transcending the human realm. When it comes to humanness ascription it is also possible to ascribe more humanness than usual, that is, to superehumanize people (Waytz et al., 2014). Achieving a brand status as a person might be an example of this superhumanization. If branding oneself is seen as achieving the self-actualization (Maslow, 1965), it is could be arguable that becoming a brand is a step toward the higher level of hierarchy of humanness (Demoulin, Saroglou, & Van Pachterbeke, 2008).

It would be also interesting to explore how brand positioning influences humanness of the models that are promoting it. While researchers already started to tackle this issue (e.g. Henkel et al., 2018), managers are always creative in their branding strategies, thus there is plenty of space for future research. For example, a

popular strategy is to position a brand as a partner or a master (Fournier & Alvarez, 2012). Would the pairing a model with a brand that is positioned as a master rather than a partner attenuate dehumanized perceptions?

Ethical concerns

Overall findings of this thesis raise a few ethical concerns. While brands can benefit from being paired with people, this practice does not seem to be advantageous for the individuals. At its best, it doesn't harm the evaluation of persons associated with brands, but the decreased mind perceptions are still present. While, this is almost surely not the intent of marketers, the collateral damage is still there. There is also a part of (ir)responsibility among individuals who are engaging in this type of promotional activities (Smith, Kendall, & Knighton, 2018). All professions have drawbacks. The risk of being perceived as lacking mind or humanness can be seen as one for this profession. Additionally, no matter how involuntary these perceptions are from the part of consumers, they still exist, contributing altogether to this somber picture. The question should not be who to blame, but a more constructive question can be how to minimize deleterious effects of these practices. It remains important that the all parties

involved are aware of the stakes. This can be provided by Policy Regulations. A simple informative disclaimer regarding the potential negative consequences for the person presented in the ad might be enough. Public media literacy is also another way to circumscribe and maybe even prevent these negative perceptions of people that are presented next to the object.

All in all, with this thesis we hope to bring humanness of people back in a scope of interest among marketing scholars and practitioners.

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Louvain School of Management

Doctoral Thesis



**ADVERTISING HUMAN(NES)S :
EMPIRICAL INTEGRATION OF
ANTROPOMORPHISM AND
DEHUMANIZATION**

Iskra HERAK

The objective of this thesis is to empirically examine whether the attribution of humanness to products and brands (i.e. anthropomorphism) is intrinsically interwoven with the lack of humanness ascription to people (i.e. dehumanization). In order to understand their complementarity, a series of experimental studies was designed to unveil the subtle context in which they can co-occur and to explore different cognitive mechanisms that can potentially underly these phenomena. Findings suggest that a simple advertising photo that pairs a product and a brand with a person can lead to anthropomorphism and dehumanization respectively.

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