THE UNIVERSITY OF SYDNEY

THE UNIVERSITY OF SYDNEY BUSINESS SCHOOL

DISCIPLINE OF MARKETING

Anthropomorphism Is Not Always A Marketing Panacea: How Anthropomorphism Shapes Product Durability Perception.

(Honours Thesis)

Author

Samantha Palita Carruthers

SID: [REDACTION]

Supervisor(s)

Dr Ülkü Yüksel

Mr Eldrin Hermoso

A thesis submitted in partial fulfilment of the requirements for the degree of

Bachelor of Advanced Studies (Honours)

November 2022

STATEMENT OF ORIGINALITY

I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at the University of Sydney or at any other educational institution, except where due acknowledgement is made in the thesis.

Any contribution made to the research by others, with whom I have worked at the University of Sydney or elsewhere, is explicitly acknowledged in this thesis.

I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the projects design and conception or in style, presentation and linguistic expression is acknowledged.

Signature of Author

_____

Samantha Carruthers

November 2022

ACKNOWLEDGEMENTS

I faced a challenging and chaotic beginning to the year and there was some doubt as to whether the stars would align and I would be able to begin my honours journey. Throughout this challenging time my supervisors, Dr Ülkü Yüksel, Mr Eldrin Hermoso and my marketing honours coordinator, Dr Kiju Jung supported and encouraged my goals and gave invaluable advice. They generously shared their experience and valuable insight and for this belief in me, I thank them most sincerely. Once I found my feet, they continued to guide and encourage me to extend my learning and capacity to its limits. They nurtured my abilities and encouraged me to strive to master new skills on what was sometimes a steep learning curve. Ülkü has faced a crisis in the past few months and at no time during that period has she failed to be supportive and full of valuable insights keeping me on track during a sometimes difficult to negotiate path. Ülkü and Eldrin have gone above and beyond the requirements of supervisors.

Covid-19 has thrown up specific challenges to meeting schedules and severely limited face to face meeting opportunities particularly earlier in the year. Throughout the business school team has adapted and surpassed student expectations consistently. Thank you to Dr. Boris Choy, our honours program director for setting up all the catch ups with the whole business cohort.

I would like to give special thanks to my family and friends. To my mum and dad, words do not suffice to express my thanks to you for believing in me and for your love, support and motivation. I would also like to thank my partner Jonathan, and my fellow marketing honour colleagues, Anthea and Geri for their encouragement and support over the year.

Contents

Table of Contents

List of Tables and Figures

ABSTRACT

This research examined anthropomorphism as a marketing tool in the new paradigms of green and online merchandising. Two experiments tested how product anthropomorphism affects consumers' product durability perception. Study 1 demonstrated that anthropomorphic design had a significant effect on reducing a product's durability perception due to its greater perceived performance risk. Importantly, this research reveals an important boundary condition for the negative effect of anthropomorphism on perceived durability and performance risk. Study 2 demonstrated the moderating role of consumers' green consumption attitudes, where individuals with lower green consumption attitudes perceiving anthropomorphised products to have greater perceived performance risk and lesser durability than non-anthropomorphised products. These studies produced clear and significant outcomes that can be utilised in both theoretical and managerial implications. Therefore, although most extant research has shown that anthropomorphism enhances consumers' perceptions of a product, the current research demonstrates that anthropomorphising a product or its promotion can become a detrimental marketing strategy when aiming to project durability.

Highlights

- Product anthropomorphism can decrease a consumer's perceived durability
- The effect of anthropomorphism on durability perception is mediated by a perceived performance risk
- Individuals with lower green consumption attitudes perceive anthropomorphised products to have greater perceived performance risk and less perceived durability compared to non-anthropomorphised products.

Chapter 1. Introduction

Anthropomorphism has been used for over a century in marketing many genres of products. In 1915, Coca-Cola launched the contour bottle. The bottle, inspired by feminine proportions, was a break from the simple bottles on the market at the time. Although claimed by Coca-Cola to be originally modelled after a cocoa pod it was commonly seen as representative of the hoop skirt; the fashionable ladies' attire of the time and later associated with the silhouette of the highly successful film star, Mae West (Coca-Cola, n.d.). This popular association was not discouraged by the brand and a slightly adapted bottle shape remains today. Another example is the motorcar. Almost every motorcar since inception has followed the design convention of a front perspective resembling a human face, an early example being 1908 Ford Model T. One would be hard-pressed to find a single motor vehicle completely departing from this design premise until the recent onset of electric vehicles. Throughout the last 137 years, motor vehicles were widely anthropomorphised by their owners, possibly because of the running engines' resemblance to a living thing, and this practice has been actively encouraged by manufacturers.

The anthropomorphising of brands and products is not surprising, given that managers often direct their marketing communications and strategies towards treating the brand as a human-like entity. This is often achieved by incorporating various combinations of qualities and characteristics that resemble those of people, such as human forms, personality, and the ability to speak, imagine and feel. Those human characteristics can be subtly and implicitly incorporated into brands, products and communications. Overall, research suggests that anthropomorphism shapes consumers product perceptions, both positively, with brand evaluations (Aggarwal & McGill, 2007) , purchase intentions (Apaloaza et al., 2022; Barney et al., 2022; Liu et al., 2022, Chen et al., 2017), connectedness (Chen et al., 2018), emotional attachment (Chandler & Schwarz, 2010;Veer, 2013) , security (Thomson et al., 2005),

satisfaction (Crolic et al., 2022) (Aggarwal & McGill, 2007; Rauschnabel & Ahuvia, 2014) and negatively with anthropomorphism affecting customers attitudes towards a brand facing bad publicity (Puzakova & Aggarwal, 2018).

1.1 Research problem

With the rise of online purchases, individuals are unable to physically feel products to make judgements on quality, forcing them to rely on product-related cues (Jacoby et al.,1971; Xiao et al., 2019), like price, messaging, packaging and the physical appearance of the staged product (Akdeniz & Voorhees, 2013). Judgements of product quality and durability are particularly crucial for durable goods (Brucks et al., 2000). As a result of this, perceived product quality and durability are factors that must be optimised, since consumer perception of these qualities, are often key consumer considerations leading to purchase (Mittelman et al., 2020).

Moreover, consumers perceptions of product durability have become prominent in recent years mainly due to the growing focus on sustainability and the obvious environmental degradation resulting from a throwaway consumer society. It has become apparent that a truncated or frequent product replacement cycle produces a substantial and unsustainable amount of environmental waste both at the manufacturing and disposal stages (van den Berge et al., 2021). Today's consensus aims to limit this waste; this ethos of sustainability is fuelling consumer demand for the extension of the product replacement cycle while encouraging the design of more durable products which save resources by delaying obsolescence.

Globally, there has been a significant shift in consumers' sentiment around the environment to favour brands that produce more sustainable products, with consumers moving away from cheaply manufactured products with have an extremely short lifespan. In

the 2021 Global Sustainability Study, 85% of individuals surveyed indicated that they have shifted their purchases towards being more sustainable in the past five years (Simon-Kucher & Partners, 2021). With consumers seeing themselves as agents of change (Simon-Kucher & Partners, 2021), brands need to heed the call to action and adapt rapidly. The extension of both actual and perceived product lifespan, green manufacturing as well as optimised operating efficiency are critical for sustainable consumption and the long-term viability of the planet. The majority of product durability literature explores durability from the perspective of product design and manufacturing practices (Bocken et al., 2016; Van Nes & Cramer, 2005). However, research from the consumer perspective is lacking, despite the fact they are the most consequential stakeholder because their consumption behaviour directly affects demand for durability and sustainability. We have identified a gap in the published literature around these concepts. The current study aims to examine the effect of anthropomorphic product design on consumer perceptions of product durability. Our research will help marketers effectively position their products as durable and ESG-conscious in an environment where most purchases are made online.

1.2 Research questions

The phenomenon of product anthropomorphism refers to the individual's perception of inanimate products as having humanlike physical appearances and inferred emotion (Aggarwal & McGill, 2007; Landwehr et al., 2011). Anthropomorphising objects has assisted individuals to make sense of the world for millennia while reassuring decision-making by allowing interpretations of the world and its components as "humanlike" (Guthrie, 1995). As a consequence, this makes the interpretations more familiar and relatable (Pollo et al., 2009). Human consciousness and related emotion are considered the fundamental feature that distinguishes humans from other animals and non-living entities (Waytz et al., 2010).

Humans tend to deduce ability from physical cues, and therefore anthropomorphise objects that look and act in a human manner (Morewedge et al., 2007). If an object has humanlike appearances or movements, then the object is likely to be perceived as having a similar psychological function to a human (Waytz et al., 2010). Anthropomorphic product design alleviates perceived risk (Kim & McGill, 2011), which in turn increases the perception of trustworthiness (Lau & Lee, 1999). This heightened trust increases desire, reducing consumer's inner purchasing conflict and strengthening their purchase intention (Hur et al., 2015).

The proliferation of anthropomorphised products in the marketing environment inspired my interest because of the eclectic variability of products available in the marketplace that utilises this marketing style. Brands anthropomorphise their products to elicit a positive consumer reaction while fostering an impression of trustworthiness to encourage product loyalty (Guido & Peluso, 2015). The scope and range of these products chosen have evolved to be wide and seemingly without a pattern.

The effect of anthropomorphism on perceived product durability is intriguing. There appears to be a paradox in that certain products utilising anthropomorphism as a design feature, which essentially gives to giving life to products by imbuing them with human-like characteristics, elicits a perception of product longevity for the consumer. While a different set of existing products also displaying anthropomorphism have a less stringent or no requirement for longevity, like hand sanitizer bottles, toothpaste, food or milk. An analysis of the academic literature suggests that anthropomorphism may decreases the consumer's perception of product longevity. However, anthropomorphism is regularly used to advertise products that depend on a consumer's perception of advanced longevity and trustworthiness. This approach is clearly successful for both product categories as it still used as a promotion today, with cars to Colgate toothpastes. Thus, which is true and why?

Hence, our research question is as follows:

1. How does anthropomorphism influence consumers perceived product durability?
2. What explains the effect of anthropomorphism on perceived product durability?
3. What factors influence the effect of anthropomorphism on perceived product durability?

1.3 Research Purpose

The proposed study aims

1. To determine the effect of product anthropomorphism on consumers' perception of product durability,
2. To examine the role of performance risk as an underlying mechanism explaining the causal relationship,
3. To investigate the moderating role of consumers' green consumption values on the effect of anthropomorphism on products' perceived durability and performance risk.

To the best of our knowledge, we are the first to incorporate the constructs of product anthropomorphism, the product attribute of durability and the consumer green attitudes. The proposed study will contribute to both theory and practice. It contributes to anthropomorphism and marketing literature by discovering a novel antecedent of perceived product durability. This research also highlights an important managerial implication regarding the use or the avoidance of using product anthropomorphism to shape durability perceptions. The research will contribute insights to anthropomorphism literature by discovering who benefits most from the anthropomorphic marketing style by identifying if anthropomorphism has a causal relationship with the perception of fragility.

Chapter 2 Literature review and Hypothesis Development

See the Appendix A for a detailed literature review table that encompasses 99 articles on anthropomorphism all of which were published in leading marketing, consumption, consumer and psychology journals.

2.1 Online shopping

Over the past twenty years online shopping has become an increasingly important conduit for retail sales, this trend was accelerated by the recent pandemic with over 2.1 billion people worldwide making online purchases in 2021 (Coppola, 2021). Lockdowns and the resulting boredom and isolation exacerbated the trend increasing both volume and spend. Even in the twilight of the pandemic, individuals have continued to purchase goods online in high volume, indicating a permanence in the paradigm shift (Coppola, 2021). For marketers, the Achilles heel of online shopping has always been the consumer's inability to physically access or adequately experience the items being evaluated for purchase. This lack of ability to physically feel and make judgements about products requires a different marketing approach and the establishment of greater trust between consumer and marketer.

2.2 Factors that encompass product durability

In the online world judgements on quality rely more on product-related cues (Jacoby et al., 1971), such as messaging, packaging, physical staging and product appearance (Akdeniz et al., 2013). A product's durability is nuanced and subjective and therefore much more difficult to evaluate in an online environment. Durability assessment is heavily dependent on a product's brand perception, design characteristics, intrinsic quality cues as well as consumer attitudes and usage behaviours (Lund & Denney, 1978). Assessment of these factors molds a consumer's perception of durability and their product longevity expectations. Perceived product durability is a factor that must be honed by the marketer

since consumer perception of this factor is one of the primary considerations during purchase decision-making.

To lower the uncertainty and perceived risk of online purchases, consumers make inferences about product quality by relying on specific features known as product cues (Veale et al., 2006). These non–physical cues serve as substitute quality assessors for consumers. According to the cue utilisation theory, product perception involves complex information processing that includes making inferences about products from the available cues in the product's environment (Cox, 1967). These cues can be divided into high and low-scope categories. High-scope cues are established over time and tend to be more credible. These cues include brand reputation and third-party information like reviews. On the other hand, low-scope cues can be easily manipulated by the retailer. These cues consist of product information, price and warranty. To attract consumers, online sellers use multiple cues on each of their products to generate positive or negative impressions (Jerath & Ren, 2021). For example, research on perceived durability has revealed that consumers evaluate darker-coloured products as being more durable and robust than lighter-coloured ones (Hagtvedt, 2020). Product finish is also a pertinent factor with perceived high-quality finishes, such as stainless steel attracting a premium in white goods, with an implied inference of commercial-level quality. The understanding and manipulation of consumer focus with particular attention to the visual elements and social cues of a product online is vital for marketers and merchants.

2.3 Anthropomorphism

Anthropomorphism and the Human Psyche

Anthropomorphism is a theory that describes the human tendency to perceive inanimate objects as humanlike entities (Guthrie, 1995); thus, imbuing them with external characteristics, motivations, behaviours and frailties that are expected of humans (Epley et

al., 2007). Anthropomorphising objects assists individuals to assimilate with their surrounding environment while also reassuring them by allowing them to easily interpret the world and its components as "humanlike" (Guthrie, 1995) and thus more familiar and relatable (Pollo et al., 2009). It promotes the development of a social relationship with the product, object or brand (Epley et al., 2007), while also offering a human-scale frame of reference to phenomena that can be mysterious or confounding. Anthropomorphism additionally allows for animal brand representations to be given human traits which make humans more comfortable with their presence in a domestic environment. Interactions with pets, which may innately share some of these traits in consumers' psyche, reinforce the human tendency to anthropomorphise animal brand representatives (O'Connor, 1997).

Anthropomorphism is thought to have a role in the evolution of human reasoning, as well as in facilitating the inference-making process (Aguirre-Rodriquez, 2014). This is observable widely in Greek and other ancient mythology (minotaur). This association could be due to anthropomorphism's ability to help humans recognise danger through anthropomorphic association, resulting in the ability to shield the individual and groups, as well as its facilitation of the inference-making process (Epley et al., 2007; Mithen & Boyer, 1996). This link between anthropomorphism and inference development allows for the development of logical reasoning and planning which in turn overrides typically instinctive reactions. Anthropomorphic behaviour also promotes a feeling of well-being, facilitating kindred relationships with non-human actors alongside promoting the development of teamwork (O'Connor, 1997). This process is reinforced by the hunting and farming assistance from domesticated animals (O'Connor, 1997). Given this long-standing association between humans and anthropomorphised inanimate and living creatures, anthropomorphism can also promote the development of a social relationship with a product, object or brand (Epley et al., 2007) while also proffering a human-scale frame of reference.

Psychological Underpinning of Anthropomorphism

Epley et al. (2007) explained why people tend to anthropomorphise utilising three psychological determinants: "sociality motivation", "elicited agent knowledge" and "effectance motivation". "Sociality motivation" represents the human aspiration for establishing social connections with others and those with a deficit of social connection tend to anthropomorphise non-human entities as it acts as compensation for the lack of social support and feelings of loneliness (Epley et al., 2007).

The second determinant, "elicited agent knowledge" refers to the situation where people anthropomorphise to develop advantageous interpretations of the world surrounding them. People use elicited agent knowledge to form a common ground with an unfamiliar entity. This common ground is formed from the human's prior experience in combination with the attribution of anthropomorphic features to explain natural phenomena and deals with the consequences of the uncertain (Aggarwal & McGill, 2007).

"Effectance motivation", the third determinant in anthropomorphism describes the natural inclination a human has to make sense of, and exert control over their world by gauging other people's responses and making their own inferences. Treating a non-human object as if it has a mind helps an individual make such inferences. It is the cognitive state where psychological stress acts as a catalyst for changing thought patterns in a novel social environment. The emergence of stress and uncertainty often occurs when humans encounter unknown agents. To cope with the threat of the unknown, people often form anthropomorphic inferences that restore confidence and let them perceive to have situational control over the unknown (Langer,1975). Most relevant for the present research is the idea that people are likely to anthropomorphise an unfamiliar entity to help relate their knowledge structures to themselves or others. They do so perhaps to understand the development of

complex belief systems that explain malevolent natural phenomena like death and disease (Epley et al., 2007).

Anthropomorphism in Marketing

Fournier (1998) states that in order for a brand to establish and maintain a successful relationship with a consumer, the brand must possess attributable human qualities. Anthropomorphism appears in marketing in both branding, designing logos and product shape or packages. Brand anthropomorphism is defined as the extent to which a brand is perceived as having human attributes, with relatable emotions, intention and physical characteristics, augmenting the consumer's view of self and allowing the consumers to acknowledge the similarities and relate to the brand in a more personal manner (Aggarwal & McGill, 2007; MacInnis & Folkes, 2017).

Anthropomorphism allows consumers to quickly relate to unfamiliar products by humanising their perceptions of these entities (Yang, 2020). This humanising perception is augmented by design elements that emphasise the perceived similarity between the external product appearance and human physical attributes (Aggarwal & McGill., 2007; Epley et al., 2008) and perceived similitude between emotions, cognition and the product (Epley et al., 2007). In previous studies researchers have included anthropomorphised representations of products with human physical features (e.g., bottles with feminine body shape or robots with human facial features), (Kim & McGill, 2011; Landwehr et al., 2011), utilised humanised product descriptions (e.g., Nikon's "I am" campaign) (Aggarwal & McGill, 2007, 2012; Wen & Song, 2017) or created anthropomorphised mascots (e.g., M&M's) (Ko et al., 2022; Patterson et al., 2013).

Anthropomorphising a product opens an additional subconscious channel between the brand and consumer, altering the emotional dimension of the consumer's experience with the product. Prior research notes that people tend to anthropomorphise non-human entities such

as cars (Aggarwal & McGill, 2007; Chandler & Schwarz, 2010; Windhager et al,2010), computers (Sundar, 2004; Waytz et al., 2010), coffee mugs (Han et al.,2019) slot machines (Kim & McGill, 2011), artificial intelligence (Bickmore & Picard 2005; Waytz, et al., 2014), watches (Puzakova & Aggarwal, 2018) as well as sentient beings (Chartrand et al., 2008; Downey & Ellis, 2008; Epley et al., 2008), establishing a loyalty reaction similar to a friendship - this can be harnessed by marketers. This strategy is most effective with consumers who are extroverted as they are more likely to anthropomorphise inanimate objects than introverts (Lau, 2020).

Fostering consumer ease with the product

Anthropomorphism fosters an increased sense of control and connectedness with the brand to make consumers more comfortable (Chen et al., 2018). Chen et al. (2018) notes that engaging with anthropomorphised products assists people to satisfy their primal needs for relatedness. Anthropomorphism changes the way individuals act with a product. Their interaction changes from a utilitarian to an interpersonal relationship, promoting a sense of belongingness and connection. Satisfying the important need for social connection through anthropomorphism can result in positive consumer perception simultaneously enhancing feelings of vitality and autonomy (Chen et al., 2018). Consumers' engagement with these products correlates strongly with satisfying, social benefits (Wang et al., 2007) similar to those experienced through interpersonal interaction (Ball & Tasaki, 1992; Chen et al., 2017). Consumers are more attracted to anthropomorphised products when belongingness needs are prominent (Chen et al., 2017) which can grow to a dependency and security with the object (Thomson et al., 2005). The use of anthropomorphic language has been found to be effective in helping brands improve consumer engagement and brand perception on social media (Wen & Song, 2017), as well as the positive association with human interaction, effectively solidifying brand loyalty (Guido & Peluso, 2015).

Emotional attachment to a product.

Product anthropomorphism is strongly associated with the creation of an emotional bond between consumer and product. Once established, the bond leads to the owner tending to be more protective of their humanised item and display reluctance to carelessly damage or replace it (Chandler & Schwarz, 2010; Thomson et al., 2005; Veer, 2013). This phenomenon can be a negative for repeat sales if cyclical replacement schedule is desirable. This is particularly observable amongst motor vehicle enthusiasts (Chandler & Schwarz, 2010) who often identify with their vehicle and the brand, committing disproportionate funds towards maintenance and improvement of their vehicles while seeing them as an extension of their persona. The cars have greater longevity possibility because of the high maintenance due to the owner's perception of the car's human-like vulnerability to deterioration and their emotional attachment to the vehicle. It is unclear whether this is initiated by advertising or is an innate part of the individual's personality. Chandler and Schwarz (2010) reported that participants completing a personality questionnaire about their car displayed fewer replacement behaviours, with the author's reasoning that this treatment elicited anthropomorphic associations which shifted the consumer's pragmatic thoughts to social ones. This reluctance to separate from anthropomorphised products is possibly further explained by the positive association between anthropomorphism and saving behaviours (Ahn et al., 2013; Neave et al., 2015; Timpano & Shaw, 2013). This emotional attachment and saving behaviour is a result of the items representing human life and the consumers feeling guilty if they intentionally discard one of their own (Ahn et al., 2014).

Cuteness in anthropomorphism

Research into kindchenschema cuteness examines marketing and products utilising young, fresh, and juvenile appearance as a selling point (Nenkov & Scott, 2014). These studies show that generic physical infant features, such as round cheeks, large eyes and head

trigger caretaking instincts (Glocker et al., 2009; Hildebrandt & Fitzgerald, 1979). Whimsical cuteness, another cuteness style, has dimensions of independence, humour, and fun (Nenkov & Scott, 2014). Perceptions of whimsical cuteness can be evoked by visual cues such as colourful (Nenkov & Scott, 2014), and rounded geometric graphics (Cho, 2012). Some brands leverage the cuteness of fictional characters to sell multiple cheaply manufactured products for premium prices (Cheng, 2019; Masuda, 2015). An example of this is the Hello Kitty range of products, popular throughout the world but particularly in Asia. Exposure to kindchenschema cuteness instinctively activates links with vulnerability (Wang & Mukhopadhyay, 2015), provoking the need for care from the consumers. As a consequence, we suggest that such anthropomorphised products may be perceived as not being able to perform well in the future and thus as less durable.

Drawbacks of anthropomorphism

Although most research points to the beneficial effects of anthropomorphism, there are weaknesses. For example, for agency-oriented customers (individuals that tend to differentiate themselves and focus on self-interests), the perceived unfairness of price increases is amplified for brand that anthropomorphise due to agency orientation (Kwak et al., 2015) and this can hurt brand performance during negative publicity (Puzakova et al., 2013). Puzakova and Aggarwal (2018) show how a consumer desire for distinctiveness can actually result in less preference for an anthropomorphised brand. Additionally, low-power customers perceive risk-bearing objects as riskier when the entities are anthropomorphised (Kim & McGill, 2011). Further, research suggests when culturally distant destinations are anthropomorphised, this decreases consumers' intentions to travel as well as increases perceptions of social risk associated with the location (Kwak et al., 2020). Anthropomorphism also harms consumer responses when customers are in crowded environments and want to socially withdraw (Puzakova & Kwak, 2017). Consequently, it

would be too simplistic to adopt that anthropomorphism positively influences customers' interactions with brands and products. The implications are more nuanced, with outcomes depending on both consumer characteristics and the environment (Valenzuela & Hadi, 2017).

Theoretical conceptualisation and hypothesis development

2.4 Anthropomorphism and Perceived Product Durability

Perceived durability whilst subjective is quantifiable. Previous research on perceived durability identifies isolates and examines the consumer perception that a product possesses the strength and longevity to meet their expectations. Perceived durability can be separated into two categories: functional and stylistic (Sun et al., 2021). Functional describes the longevity and sturdiness of a product, while stylistic refers to the timeliness of the design style (Sun et al., 2021). This study will focus on functional perceived durability as this is usually the primary concern during product selection.

Consumers frequently evaluate whether products' or brands' cues are in some ways similar to their own self-concept, which they try to reinforce or confirm (Sirgy,1982; Sirgy & Su , 2000). Consumers use brands and products to display their self-concepts (Escalas et al., 2003; Sirgy, 1982; Taylor et al., 2012, Wallendorf & Arnould, 1988). This is achieved through the purchase of products that will assist in consumers defining, preserving and enriching their self-concept (Ericksen, 1997). Anthropomorphised products can generate humanlike cues that activate the human schema (Aggarwal & McGill, 2007). This generation of cues can result in consumers identifying similarities between the anthropomorphised products and the human schema (Van den Hende & Mugge, 2014) therefore resulting in the consumers subconsciously relating the product's features to their self-concept (MacInnis & Folkes, 2017). Qualities such as vulnerability can be transposed from the consumer psyche to the product and affect the general perception of product quality and risk. We propose that consumers are likely to imagine parallels between the anthropomorphised product and

themselves, to compare the humanlike traits of the anthropomorphised product to their self-concepts like their fragility and project onto the product.

Existing research further suggests that effectively anthropomorphised products have a perceived susceptibility approaching that of a human (Epley et al., 2007) and therefore are subconsciously considered less robust and more at risk of premature degradation by their owners. Research suggests they can elicit a more caring attitude from the consumer because of this (Chandler & Schwarz, 2010; Thomson et al., 2005; Veer, 2013). Thus, we suggest that an anthropomorphised product with this association may be assumed to have a finite lifespan and may be perceived to suffer from human shortcomings and will therefore be perceived as less durable.

H_1: Anthropomorphised products are expected to have lower durability than non-anthropomorphised products.

2.5 Anthropomorphism, Performance Risk and Durability

Perceived performance risk is the degree of uncertainty users have regarding their ability to achieve the expected results with the product. Marketers pay attention to consumers' perceived risk of online-related actions because it is one of the precursors in explaining consumers' behaviour. One of the most significant obstacles to the development of e-commerce is considered to be a consumer's perceived risk (Malaquias & Hwang, 2016). Understanding and lessening consumers risk perceptions who browse goods or services online is vital when transforming them into purchasers (Speck & Elliott, 1997).

Although prior work suggest that anthropomorphism could lead to greater risk perception, power moderates this effect, where those with lower (vs. greater) power perceives greater (vs. lower) risk from the anthropomorphised object (Kim & McGill, 2011). Kim and McGill (2011) also broadly defined perceived risk, both from the financial and physical perspectives, as they investigated situations when pleasure and monetary rewards could be

derived from taking risks (i.e., slot machines) but also when the risk poses inevitable physical threat to the individual (i.e., cancer). Our research, however, focuses on product acquisition and the corresponding performance risk that is inherent to the anthropomorphised product.

The parallels that consumers are likely to compare themselves to the humanlike traits of the anthropomorphised product to their self-concepts is further supported by utilising the "effectance motivation" determinant. This determinant is where individuals anthropomorphise unfamiliar entities to activate previous knowledge structures about themselves and other humans, this may help explain the development of complex belief systems to contextualise natural phenomena (Epley et al., 2007). Wang et al., (2022) also found that people perceive anthropomorphised money as capable of experiencing pain and joy have a perception of it being more vulnerable and in need of protection. Anthropomorphised products feed an increased perception of the product having shared experiences with the consumer during its life, leading potential owners to consider products as being susceptible to harm introducing sentimentality (Wang et al., 2022). We believe this risk could potentially be linked to product durability perception as durability is considered the lifespan expectancy of a product (Cooper, 2005). Implicitly reminding consumers of their fragility and by extension, impermanence through product anthropomorphism may negatively impact perceived durability as it links to the transference of the perceived object having a finite lifespan and therefore less durability.

H_2: The effect of anthropomorphism on perceived product durability is mediated by perceived performance risk. Anthropomorphised products will be perceived as having more performance risk issues, which will instigate lower product durability perceptions.

2.6. Moderating role of green consumption attitudes

A review of the literature suggests that all consumers, whether looking at a product from a green perspective or not, subconsciously expect the green product to be less efficient

and to display multiple negative characteristics in comparison to a product that is not conceptually green (Luchs et al., 2010). Many of today's consumers are willing to overlook these perceived negatives, either because they genuinely believe that they are doing good for the environment or because they aspire to virtue signal and gain social standing from their altruistic choices (Luchs et al., 2010). In the contemporary marketplace, consumers are increasingly confronted with choices between environmentally friendly products and their more traditional counterparts as more businesses produce green products or have greenwashed packaging that is positioned as environmentally friendly. A good understanding of consumer attitudes toward environmental issues and consumption of green products is particularly important due to the growing consensus around the necessity for built-in sustainability in product design and supply chains.

The consumer association between green products and competence perception is multifaceted. In some contexts, green products suggest high competence, such as Tesla EVs and energy-efficient technology, which benefit from associations with high status, high conscientiousness and altruism (Elliott, 2013; Griskevicius et al., 2010; Sexton & Sexton, 2014; Wells et al., 2011; White, et al., 2011) while in others, it suggests unnecessary inconvenience, inadequate design, poor product performance and rapid deterioration (Lin & Chang, 2012; Luchs et al., 2010) Examples of this include, paper drinking straws which break down before serving their purpose or the plastics which begin to rapidly degrade early in their lifecycle as planned obsolescence is part of their business model.

Haws et al. (2014) introduced the concept of green consumption values defining it as "the tendency to explore the value of environmental protection through one's purchases and consumption behaviours". The authors established a method to understand differences across consumers who do or do not value preserving and conserving the environment as part of their consumption attitude. The construct of green consumption values can be defined as the

propensity to express the value of environmental protection through an individual's purchases and consumption behaviours. Thus, consumers with stronger green consumption values are generally more oriented towards protecting the environment, buying responsibly and disposing of thoughtfully (Haw et al., 2014).

Since most green products carry a price penalty, they serve as a signal to others of altruistic consumption combined with elevated socioeconomic status for their consumers (Griskevicius et al. 2010). These green consumers are able to prioritise the environment over economic imperatives (Griskevicius et al., 2010) therefore, increasing personal social desirability (Elliot, 2013) and displaying difference from others (Yan et al.,2021). Lifestyle-related green product selection can also represent the self-efficacy of consumers who are confident that their sustainable consumption can bring significant environmental changes (Wells et al.,2011; White, et al., 2011). These associations of competence and status may ultimately result in a product being considered more durable because of the expected long lasting positive social benefits as a result of adopting eco-friendly products. Therefore, when consumers with high preference to adopt green products, such as those with high green consumption values, are faced with a decision to buy an environmentally-friendly product, this eco-friendly positioning becomes the most diagnostic cue that potentially causes a halo effect on their judgement of other product characteristics. In other words, consumers with strong green identities might automatically generate positive product perceptions due to their inherent favourable attitudes towards the product being positioned as green. Thus, the impact of inconsequential product or promotional design features, such as anthropomorphism, are muted among consumers with high green consumption values.

Consumers are aware of the shortcomings implicit in green choices (Luchs et al., 2010; Newman et al., 2014). Luchs et al., (2010) found that consumers use significantly larger volumes of eco-friendly laundry detergent than regular detergent in a single use due to

the belief that green products are less effective. Newman et al., (2014) also found that consumers perceive green products possess lower quality when firms deliberately emphasise green attributes in their advertisements. Furthermore, when looking for strength-related attributes, green products are less favoured compared to regular products as they are perceived as inferior with this sentiment even extending to the more environmentally conscious consumer who chooses the product despite knowing that the product is less effective and they will need to use more for the same result (Lin & Chang, 2012). These findings go some way to explain the growing cynicism felt towards corporate greenwashing (Delmas and Burbano, 2011) and the loss of consumer trust in product performance and suitability (Mangini et al., 2020).

Prior research isolates the mechanism for anthropomorphism effect on individual judgement (Aggarwal & McGill, 2007; Epley, Waytz, & Cacioppo; 2007; Puzakova et al., 2013). Research has demonstrated that anthropomorphism increases evaluation for products with positive qualities such as alleviating risk (Kim & McGill, 2011), increasing trust (Guido & Peluso, 2015; Hur et al., 2015; Lau & Lee, 1999), helping customers feel comfortable and connected (Chen et al., 2018), while the evaluation becomes worse for entities with negative characteristics (Puzakova et al., 2013; Waytz et al., 2010). For instance, when a brand suffers from negative publicity due to products' wrongdoings, consumers decrease the evaluation for an anthropomorphised brand to a larger extent than for a non-anthropomorphised brand (Puzakova et al., 2013). Consumers aware of the shortcoming of green products are likely to have a low preference for green products and would perceive an anthropomorphised green product more negatively, both in terms of durability and risk, and therefore evaluate it as more impaired compared to its counterpart.

H_3: Individuals with lower green consumption value will likely perceive anthropomorphised products as having suppressed product durability perceptions. However,

the negative effect of anthropomorphism on perceived product durability is attenuated for individuals with high green consumption values.

H_4: Individuals with lower green consumption attitudes will perceive anthropomorphised products as having greater perceived performance risk. Conversely, anthropomorphism will have no effect on perceived performance risk among individuals with high green consumption values.

Chapter 3: Methodology

3.1 Research Method

Experimental design was selected as it allows the researchers to determine causality between constructs through the systematic control of extraneous variables and the manipulation of independent variables (Creswell, 2013; Neuman, 2014). Experimental design is deployed for studies aiming to gain exploratory, in-depth insights into an emerging or previously unexplored phenomenon (Creswell, 2013). In our experiment, we will examine the effects of anthropomorphising a product (cause) on consumer perception of product durability (effect). As perceived durability has not been studied before in anthropomorphism literature, the experimental design would be the most appropriate method for gaining exploratory insight. Conducting an experiment allows for the creation of an artificial world, allowing isolation of the target effect to purposely integrate theoretically significant variables while removing irrelevant or confounding variables (Neuman, 2014). There are however some disadvantages to using this method, including the lack of generalisability due to their artificial nature and also the possibility that the respondents may not answer honestly (Himmelfarb & Lickteig, 1982). The artificial condition of experimentation provides a limited simulation of the natural world and is therefore not wholly representative of an

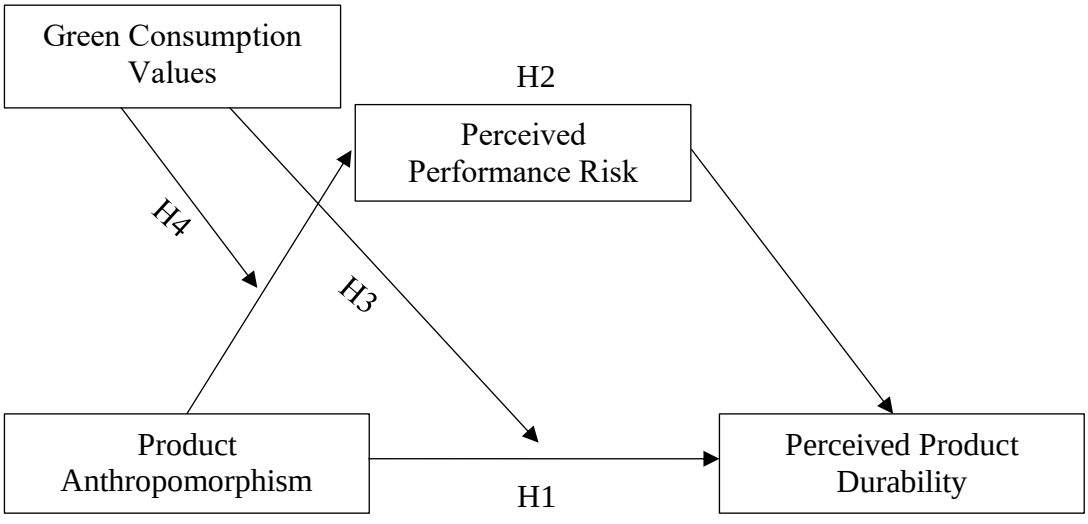
empirical population (Webster & Sell, 2007). Nevertheless, this research method remains well-suited to identifying a cause-effect relationship.

3.2 Overview of studies

To test the proposed hypotheses, two experiments were conducted (See figure 1 for conceptual model). Study 1 examined whether and how product anthropomorphism affects perceived product durability. Study 2 aimed to replicate the findings in study 1 by examining the effect of product anthropomorphism on perceived product durability in the context of a different product category to further validate the mechanism underlying anthropomorphism's effect on perceived product durability. This study also investigated the moderating role of green consumption value.

All experiments were conducted online via Qualtrics, with stimuli automatically randomised to each participant. The online surveys offered our participants the flexibility to take part in our research at their convenience although a disadvantage to this is impaired data quality due to the potential distraction from multitasking encountered in a non-laboratory environment (Zwarun et al., 2014). In addressing this concern, multiple attention check questions (e.g.,"If you are reading this question then select somewhat disagree and proceed to the next page.") were staggered throughout the survey to identify and eliminate participants who provided responses that were random or incoherent (Oppenheimer et al., 2009).

FIGURE 1 – CONCEPTUAL MODEL



Chapter 4: Study 1

4.1 Overview

Study 1 investigates the direct effect of product anthropomorphism on perceived product durability, in the context of a hand-held blender as a product type. This study also aims to understand the underlying process and evaluate whether the potential effect of anthropomorphism on perceived product durability were mediated by perceived performance risk. To illustrate the generalisability of the hypothesised negative effect of anthropomorphism on durability perceptions, we also explored contexts when consumers either have a predominant utilitarian or hedonic shopping motivation. We expect our predictions to hold, anthropomorphised products being perceived as less durable, regardless of consumers' shopping motivations. For a stronger and cleaner experimental manipulation of shopping motivation, we used the same product (hand-held blender) and only we varied the scenario and product description in the hedonic and utilitarian conditions. Specifically, we anticipated that anthropomorphised products will be evaluated to have lesser durability than non-anthropomorphised products (H_1). We also anticipated that the effect of anthropomorphism on consumers' perceived product durability will be mediated by perceived performance risk of the product, with anthropomorphised products being perceived as having more performance risk issues, which will instigate lower product durability perceptions (H_2).

4.2 Product selection and Stimuli design

Prior product anthropomorphism studies have manipulated anthropomorphic factors by modifying product design elements (Kim & McGill, 2011; Landwehr et al., 2011) or product descriptions (Aggarwal & McGill, 2007, 2012; Wen & Song, 2017). When products are designed with humanlike facial features, significant numbers of consumers interpret product faces in a similar way to how they would in an interaction with a human (Yang et al., 2019). The utilisation of anthropomorphic product descriptions can enhance consumer

product-related emotion by referring to the product in first or third person (Aggarwal & McGill, 2007). In our study, our treatment condition utilised a combination of an anthropomorphically designed product with human facial features and description.

The study adopted and modified stimuli from previous research examining shopping motivation (Chen et al., 2021). In order to replicate and extend quantitative findings (Brown, 2015), we selected a product that had been previously utilised and tested in shopping motivation research. In addition, a hand-held blender is deemed to be used by the student age group to make popular cocktails and smoothies, and thus appropriate for student population. We adapted these stimuli to imbue anthropomorphism by adding additional buttons to the handle of the blender forming an arrangement similar to a face (vs. a non-humanised control) and altered the accompanying promotional text to the first person "I'm a hand blender." (vs. "This is a hand blender") as recommended by previous research (Aggarwal & McGill, 2007, 2012; Kim & McGill, 2011; Landwehr et al., 2011; Wen & Song, 2017). However, the size, shape and the number of buttons on the blenders were the same for both conditions. The only difference was their location (See appendix B for the stimuli). The participants allocated to the hedonic condition were asked to imagine that they were considering the purchase of a hand-held blender to make fun cocktails, whereas those allocated to the utilitarian condition were asked to imagine that they were considering the purchase of a handheld blender to make healthy smoothies.

4.3 Procedure and Measures

Procedure

A total of two hundred and eighteen individuals from a large university were recruited for Study 1 in exchange for course credit. Eighteen participants failed either one or both of the attention check items ("This is a question intended to check if you are paying attention or not. If you are reading this question then select strongly disagree and proceed to the next

page."; 1 = Strongly disagree, 7 = Strongly agree and "This is a question intended to check if you are paying attention or not. If you are reading this question then select strongly agree and proceed to the next page."; 1 = Strongly disagree, 7 = Strongly agree) and were therefore removed, resulting in a total of two hundred valid participants (69.2% females, Mage = 21.6, SD = 2.13). The experiment employed a 2 (anthropomorphised product: yes vs. no) x 2 (shopping motivation: hedonic vs utilitarian) between subject-factorial design on consumers' durability perceptions.

Participants were informed that they were to participate in a study regarding their responses to marketing messages and that they would be introduced to a marketing campaign for a hand-held blender. Those who had registered in the student subject pool management system and agreed to participate in the study were provided with a study URL link via the internal university system. They were asked to complete the online survey within one week but in one sitting within 45 minutes.

After consent was obtained, participants were randomly assigned to one of four conditions. Once exposed to the stimulus, participants were presented with a brief definition of durability i.e., "the ability for a product to last over time, resisting wear, damage, deterioration" along with measures to test the main effect of anthropomorphism on perceived durability. They were subsequently asked to indicate to what extent they thought the product was: "durable/enduring/long-lasting/wear out quickly/withstand many uses" (Jiang et al.,2016; Li & Dant, 2001; Yoo & Donthu, 2001) Further, product perceptions, including vulnerability, the instilling of a need for protection, congruence and performance risks, were measured in order to rule out a potential or an alternative explanation for the process.

After completing the main tasks, participants indicated their perceived product anthropomorphism on a three-item, seven-point scale, adapted from prior studies (Aggarwal & McGill, 2007; Waytz et al., 2010): "To what extent do you think this product was

humanlike/seemed alive/has its own personality?" (1 = Not at all, 7 = Very much). Participants were also presented with a brief meaning of hedonic and utilitarian products. Hedonic was defined as "something that is for fun, excitement and sensual pleasure, often involving products or services that are frivolous or luxurious" while utilitarian was defined as "something that is for fundamental and functional needs and often involves products or services that are for practical use" (Dhar & Wertenbroch, 2000). They then reported how utilitarian or hedonic they perceived the product to be.

Finally, cuteness (Sprengelmeyer et al., 2009; Nenkov & Scott, 2014) and mood (Allen & Janiszewski, 1989) were measured as potential covariates due to these variables potentially influencing the effect of anthropomorphism on product perceptions (Cheng et al., 2020; Bodenhausen et al., 1994). Basic demographic information was also asked.

Measures

Several measures were adopted from previous research to assess the independent and dependent variables as well as mediators. Measures consisting of more than one item were average to develop their respective indices.

Independent measures

Anthropomorphism. Anthropomorphism (α = .90) was evaluated using a three-item scale from Aggarwal and McGill (2007) and Waytz et al., (2010). Participants responded to the following questions; "To what extent do you think this product is humanlike / seemed alive/ has its own personality" on a seven-point Likert-type scale.

Dependent measures

Perceived product durability. A five-item perceived product durability (α = .77) scale was adopted from Jiang et al., (2016), Yoo and Donthu, (2001) and Li and Dant, (2001) product durability scales. Participants responded to the following questions; "To what extent

do you think this product is durable/long-lasting/wear out quickly/ withstand many uses?" on a seven-point Likert-type scale.

Mediators

Perceived performance risk. Perceived performance risk (α = .92). was assessed using a two-item scale adopted from Cox et al., (2006). Participants responded to questions asking to what extent do you agree to the following statements; "I worry that this product will fail to perform as intended." and "I am concerned that this product will fail to work satisfactorily." on a seven-point Likert-type scale.

Self-image congruence. A three-item self-image congruence (α =.93) scale was adopted from Sirgy et al., (1997) and Bastos and Brucks (2017). Participants answered the following questions; "This [product] is consistent with how I see myself/reflects who I am/ is closely associated with my identity".

Product efficacy. We utilised Newman et al. (2014) three-item product efficacy (α = .94) scale. Participants responded to the subsequent questions; "How would you rate the effectiveness/ability/efficacy of this [product]?" on a seven-point Likert-type scale.

Vulnerability. A six-item product durability (α =.91) scale was adopted from Ma et al. (2019) and Zhu et al. (2019). Participants responded to the following questions; "To what extent do you think this product is susceptible to damage/weak/vulnerable/can be harmed/vulnerable to risk/ can be injured?" on a seven-point Likert-type scale.

Need for protection. A two-item scale was created for need for protection (α =.93). Participants responded to the following questions: "To what extent do you think this blender needs to be cared for/looked after/protected?" on a seven-point Likert-type scale.

4.4 Results

Manipulation check for anthropomorphism and shopping motivation

Participants' responses to the questions of anthropomorphism were average to generate indicators of perceived anthropomorphism. An independent sample t-test was employed to determine whether anthropomorphism was successfully manipulated for the hand-held blender. The blender in the anthropomorphised condition (M = 3.52, SD = 1.53) was perceived to be more humanlike than the non-anthropomorphised condition (M = 2.89, SD = 1.62; t (199), p = .004), confirming a successful manipulation for anthropomorphism.

An independent sample t-test was employed to determine whether shopping motivation was successfully manipulated for the hand-held blender. The blender in the hedonic condition (M = 4.07, SD = 1.90) was perceived to be more fun than the utilitarian condition (M = 2.94, SD = 1.71; t (199), p < .001). While the blender in the utilitarian condition (M = 2.94, SD = 1.71 was perceived to be more functional than the hedonic condition (M = 4.07, SD = 1.90); t (199), p < .001). This manipulation check confirmed successful manipulation for shopping motivations.

Perceived Durability

A two-way ANOVA was conducted that examined the effects of anthropomorphism and shopping motivation on perceived product durability (H_3). There was a significant main effect of anthropomorphism on perceived durability (F (1, 197) =7.854, p = .0038, n^2_p=.038). There was lesser perceived durability for anthropomorphised products (M = 4.27, SD = 1.02) than non-anthropomorphised products (M = 4.65, SD = .90), supporting H1. There was no main effect of shopping motivation on perceived durability (F (1,197) = .044, p = .834, n2p = .00). There was also no significant interaction between anthropomorphism and shopping motivation, (F (1,197) = .550, p = .459, n^2_p = .003). Given that the interaction effect is not

significant, we will only focus on the results of the main effect (anthropomorphism vs. non-anthropomorphism). The shopping motivation conditions collapsed.

Perceived performance risk

An ANOVA was conducted that examined the effects of on anthropomorphism on perceived performance risk. There was a significant main effect of anthropomorphism on perceived performance risk (F (1, 216) = 7,609, p=.007)

Alternative mediators and control variables.

An ANOVA was conducted that examined the effects of the alternative mediators and control variables. There was no significant effect of anthropomorphism on vulnerability (p=.233), need for protection (p=.712), congruence (p=.024) and mood (.788). There was a significant effect of anthropomorphism on cuteness (p=.003).

Mediation analysis for testing H2

To evaluate whether the effect of anthropomorphism on consumer's perceived product durability was mediated by perceived risk, we employed a simple mediation model, in which anthropomorphism was an independent variable, perceived durability was the dependent variable, and risk was a mediator (Model 4 in PROCESS; Hayes 2016). The study assessed the mediating role of perceived risk on the relationship between anthropomorphism and durability. The results revealed a significant indirect effect of anthropomorphism on durability (b = -0.1140, SE = .0486, 95%CI = [-.2160 to -.0274]). Furthermore, the direct effect of anthropomorphism on durability in presence of the mediator was also found to be significant (b = -.2650, p = .0458). Hence, risk partially mediated the relationship between anthropomorphism and durability. The mediation analysis summary is presented in table 1.

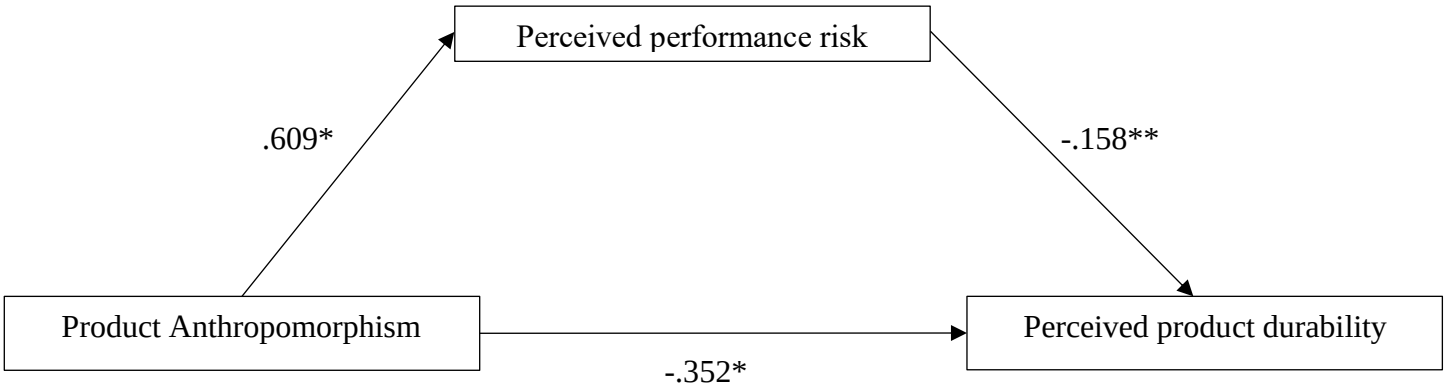
The encroachment of a cuteness factor can potentially adulterate findings due to exposure to kindchenschema cuteness spontaneously triggering associations with vulnerability (Wang & Mukhopadhyay, 2015) and, as a consequence, may result in products

being perceived as less durable, and eliciting greater care from the consumer. Mood can also have an effect on product perceptions, with anthropomorphised products elevating human mood promoting investigative judgement (Bodenhausen et al., 1994). Therefore, in the following mediation model, we added the measure of cuteness and mood as a covariate to reduce error in our model. The results indicated that anthropomorphism was predictive of perceived performance risk (b = .609, p = .003) while controlling for cuteness (b = -.071, p = .3226) and mood (b = -.166, p = .064). The results revealed a significant indirect effect of anthropomorphism on durability (b = -.096, SE = .0416, 95%CI= [-.1878 to -.0258]). Furthermore, the direct effect of anthropomorphism on durability in presence of the mediator, risk, was also found significant (b = -.352, p = .004). Hence, risk partially mediated the relationship between anthropomorphism and durability. The mediation analysis summary is presented in Table 1.

TABLE 1-MEDIATION RESULTS OF STUDY 1

Relationship	Direct effect	Indirect effect	Confidence interval		Conclusion
			Lower bound	Upper bound	
Anthropomorphism → Risk → Durability	-.2650	-0.1139	-.2160	-.0274	Partial mediation
Anthropomorphism → Risk → Durability (Covariates: Cuteness & Mood)	-.352	-.096	--.188	-.026	Partial mediation

FIGURE 2 - SIMPLE MEDIATION MODEL (STUDY 1)



Note. (1) * = p<.05, **=0.001 (2), Cuteness and mood are included in the mediation model as a covariate.

4.5 Discussion

Study 1 provides initial support for hypothesis one (H_1). By manipulating anthropomorphism, this study confirmed the causal relationship between product anthropomorphism and perceived product durability. The findings showed that the participants were less likely to perceive a product as durable when the product was perceived as anthropomorphised (vs not anthropomorphised). Existing research suggests that effectively anthropomorphised products have a perceived susceptibility approaching that of a human (Epley et al., 2007) and thus subconsciously considered by consumers as more susceptible to deterioration. We found support that perceived performance risk mediates the relationship between anthropomorphism and durability perception, when controlling for cuteness and mood and when not controlling for either (H_2). Participants perceived greater performance risk for products in the anthropomorphism (vs. non-anthropomorphism) condition and this increase in risk was associated with lesser durability. This can be explained by the effectance motivation determinant where anthropomorphised products feed an increased perception of the product having shared experiences with the consumer during its life, leading potential owners to consider products as being vulnerable to harm, risk and undesirable outcomes. This vulnerability to harm clearly engenders perceptions of substandard function in the near future

and thus constitutes a potential performance risk. This perceived vulnerability results in a higher perception of risk and therefore makes the product appear less durable (Wang et al., 2022) and more likely to require inordinate maintenance. This study also ruled out alternative mechanisms that influence durability perceptions as a result of one's exposure to anthropomorphised products. Alternative explanations which do not significantly predict the effect of anthropomorphism on perceived durability include self-image congruence, product efficacy, need for protection, and perceived vulnerability. In the second study, we further examined the proposed mechanism and investigated a potential boundary condition of the effects found in this study. In particular, we examined green consumption as a moderating factor for anthropomorphism effect on perceived durability and the perceived performance riskiness of the product.

Chapter 5: Study 2

5.1 Overview

The purpose of this study was to examine the moderating role of green consumption values on the relationship between product anthropomorphism and perceived durability. We hypothesised that individuals with lower green consumption value will likely perceive anthropomorphised products as having suppressed product durability perceptions while individuals displaying high green consumption value will have no effect (H_3). Consequently, we postulate that individuals with lower green consumption attitudes will perceive anthropomorphised products as having greater perceived performance risk while individuals with elevated green consumption attitudes will have no effect (H_4). The study also explores a different product category from Study 1, a refrigerator, which is a high-involvement product that is an essentiality today (Deshmukh & Das, 2012; Stewart et al., 2019) as opposed to a blender being a lower-involvement product. This was chosen as high-involvement products

have expected extended longevity (Liu et al.,2020) and a high price (Akturan, 2018) so therefore it would be interesting to test if there was a similar effect.

5.2 Product selection and Stimuli Design

This stimulus involved manipulating anthropomorphic factors by modifying product design (Kim & McGill, 2011; Landwehr et al., 2011) and product descriptions (Aggarwal & McGill, 2007, 2012; Wen & Song, 2017). The refrigerators were designed using a 3-D modelling software, Blender, in order to customise a fridge and modify the material. The refrigerator was designed using plastic material instead of steel as steel refrigerators are seen as a more durable and higher price product (Eren-erdogmus et al., 2016). We utilised a refrigerator as a high-involvement product as it activates higher purchase decision making that acquires more cognitive information processing from the consumer than a low-involvement product (Stewart et al., 2019) like the blender utilised in Study 1.

5.3 Procedure and Measures

Procedure

A total of 138 Amazon Mechanical Turk (MTurk) users (52.2% female, M_{age}= 41.4 SD = 11.6) completed this study for a small cash payment. Those who failed the attention check questions were automatically forced to leave the study and therefore Qualtrics automatically removed their entries before analysis. MTurk is a popular platform for collecting survey participants in social sciences (Paolacci et al., 2010). Utilising this crowdsourcing platform has aided in the ease of potential validity issues due to MTurk users being representative of the wider United States population as traditional subject pools match the population more closely than university undergraduates or general internet samples (Paolacci et al., 2010). The absence of participant interaction with an experimenter also strengthens internal validity, alleviating concerns of experimenter bias, subject crosstalk and

reactance (Paolacci et al., 2010). The study employed a two-group (anthropomorphism: yes. vs. no.) between-subjects design on product durability perceptions.

Participants were then randomly assigned to one of the two experimental conditions to view one of the advertising stimuli (See Appendix C). After being exposed to the stimulus, participants were asked to complete the same measures as Study 1 such as questions from the scales of anthropomorphism, perceived product durability, perceived performance risk along with an additional six-item scale measuring an individual's (i.e., participants') green consumption value (1= strongly disagree to 7= strongly agree).

Measures

The same measure were adopted from study 1 to assess the independent and dependent variables as well as mediators and moderators (see table 2). One item was removed from the product efficacy as it was not considered relevant to the product in the stimuli. To measure the moderator of green consumption value we utilised the scale below.

Product efficacy. We utilised Newman et al. (2014) two-item product efficacy (α = .934) scale. Participants responded to the subsequent questions; "How would you rate the effectiveness/efficacy of this [product]?" on a seven-point Likert-type scale. A single index was formed by averaging the items

Green consumption value. A six-item green consumption attitude scale (α =.950). was adopted from Haws et al. (2014). The questions were; 1) It is important to me that the products I use do not harm the environment. 2) I consider the potential environmental impact of my actions when making many of my decisions. 3) My purchase habits are affected by my concern for our environment. 4) I am concerned about wasting the resources of our planet. 5) I would describe myself as environmentally responsible. 6) I am willing to be inconvenienced in order to take actions that are more environmentally friendly. These questions were

assessed on a 7-point Likert-type scale, where 1 represents strongly disagree and 7 represents strongly agree. The higher the score, the more inclined the person is toward environmentally friendly value (Haws et al., 2014). A single index was formed by averaging the items

TABLE 2: CRONBACH ALPHA'S OF SCALES USED IN STUDY 2

Scale	N	Items	Cronbach α
Anthropomorphism	138	3	.951
Perceived product durability	138	5	.950
Perceived performance risk	138	2	.916
Consumer green attitude	138	6	.950

5.4 Results

Manipulation check for anthropomorphism.

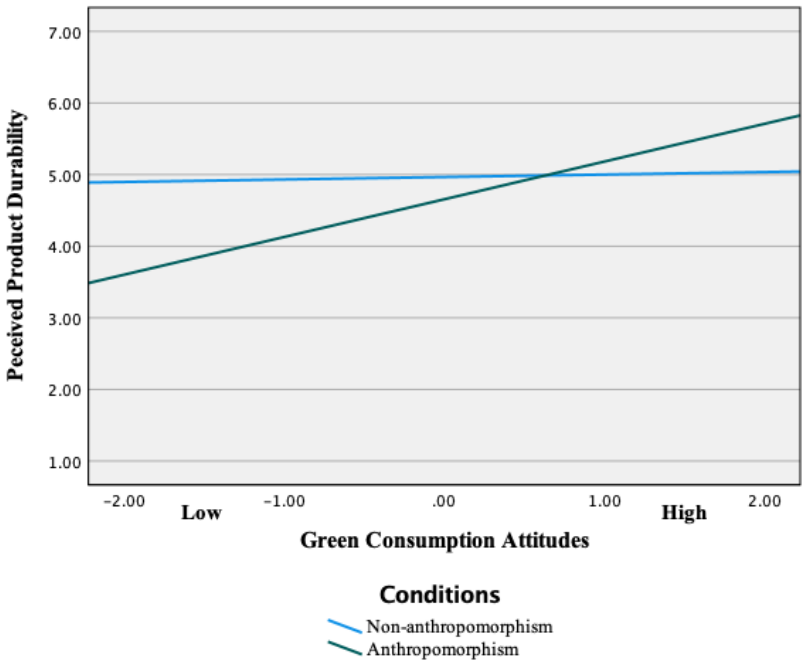
Participants' responses to the questions of anthropomorphism were average to generate indicators of perceived anthropomorphism. An independent sample t-test was employed to determine whether anthropomorphism was successfully manipulated for the refrigerator. The refrigerator in the anthropomorphised condition (M = 2.17, SD = 1.71) was perceived to be more humanlike than the non-anthropomorphised condition (M=1.63, SD = 1.15; t (136), p = .039), confirming a successful manipulation for anthropomorphism.

Main results for testing H_3

Hayes PROCESS model 1 was used to conduct a moderator analysis in order to test whether green consumption attitudes moderate the relationship between anthropomorphism and durability perceptions. The hypothesized moderation model was tested in a single model using a bootstrapping (5000) approach to assess the significant of the direct effects at differing levels of the moderator (Hayes, 2013). The study assessed the moderating role of

green consumption attitudes on the relationship between anthropomorphism on durability product perceptions. The results revealed a positive and significant moderating impact of green consumption attitudes on the relationship between automorphism and perceived durability (b = .492 SE = .143 t = 3.447 p = .008). The conditional effect is significant with low green consumption values (effect = -1.062, SE= 3.08, p = .008) and non-significant at high green consumption values (effect =.440, SE = .31, p = .160), supporting H_3. When the moderator level was low participants with lower green consumption value scores had significantly lower perceived product durability over anthropomorphised products than the non-anthropomorphised condition (see Figure 3). While there was a non-significant difference in those that exhibited higher green consumption scores.

FIGURE 3 – ANTHROPOMORPHISM AND NON-ANTHROPOMORPHISM PERCEIVED PRODUCT DURABILITY TO LOW VS HIGH GREEN CONSUMPTION ATTITUDES (REFRIGERATOR; STUDY 2)

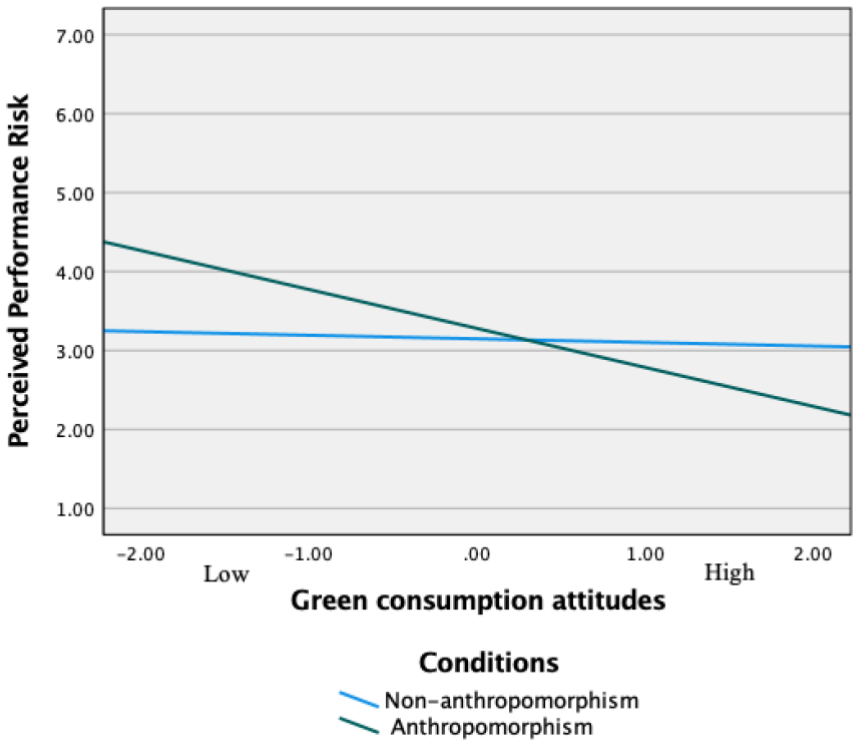


Main results for testing H_4

Hayes PROCESS model 1 was used to conduct a moderator analysis in order to test whether green consumption attitudes moderate the relationship between anthropomorphism

and perceived performance risk. The study assessed the moderating role of green consumption attitudes on the relationship between anthropomorphism on perceived performance risk. The results revealed a negative and significant moderating impact of green consumption attitudes on the relationship between automorphism and perceived durability (b = .-.448 SE = .168 t = -2.53, p = .008). The conditional effect is significant with low green consumption values (effect =.814, SE = .364, p = .02) and non-significant at high green consumption values (effect = -.552, SE = .367, p = .136), supporting H_4. When the moderator level was low participants with lower green consumption value scores had significantly higher perceived performance risk over anthropomorphised products than the non-anthropomorphised condition (see Figure 4). While there was a non-significant difference in those that exhibited higher green consumption scores.

FIGURE 4 – ANTHROPOMORPHISM AND NON-ANTHROPOMORPHISM PERCEIVED PERFORMANCE RISK TO LOW VS HIGH GREEN CONSUMPTION ATTITUDES (REFRIGERATOR; STUDY 2)



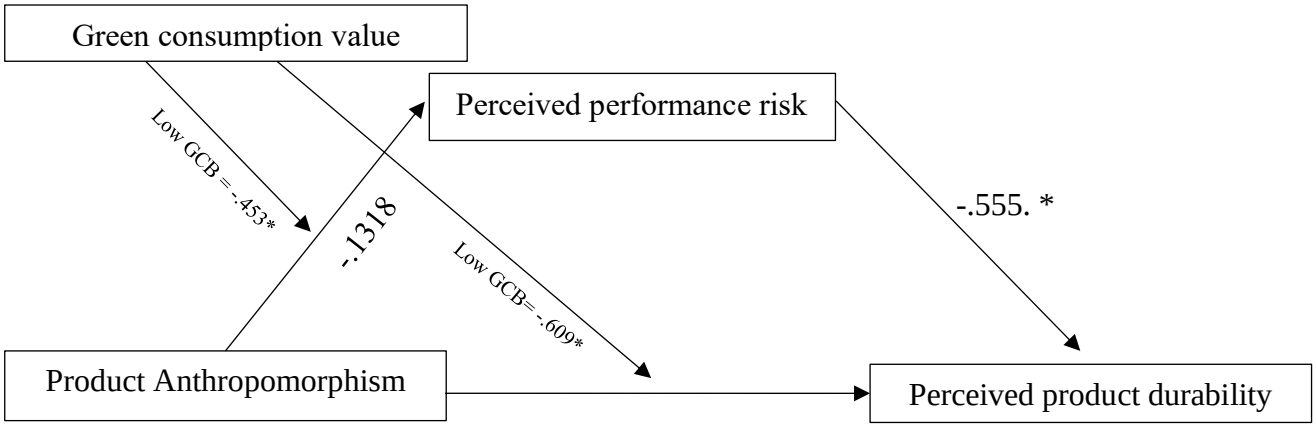
Moderated mediation

The hypothesised moderated mediation model (see Figure 2.) was tested in a single model using a bootstrapping (5000) approach to assess the significance of the direct and indirect effects at differing levels of the moderator (Hayes, 2013). Moderated mediation analysis tested the conditional direct and indirect effect of a moderating variable (green consumption value of participants) on the relationship between a predictor as an independent variable (anthropomorphism vs. non-anthropomorphism) and an outcome variable as the dependent variable (perceived durability) via a potential mediator that is another outcome variable of product anthropomorphism (i.e., perceived performance risk). The PROCESS macro, model 8, (Hayes, 2013) in SPSS version 27 with bias-corrected 95% confidence intervals (n = 5000) was used to test the significance of the indirect (mediated) and direct effects of product anthropomorphism on the dependent variable that is moderated by green consumption values of participants. This model tested the moderating effect on the predictor to mediator and the direct path to the dependent variable. An index of moderated mediation was used to test the significance of the moderated mediation (Hayes, 2013). Significant effects are supported by the absence of zero within the confidence intervals.

To support the role of perceived performance risk for environmentally friendly products, we ran moderated mediation analyses (Model 8, Hayes, 2013) with anthropomorphism (0 = control, 1 = anthropomorphised product), perceived performance risk as the mediator, durability as the outcome variable and consumer green consumption value as a moderator. In support for H_4, a significant moderated mediation index revealed that green consumption values significantly moderated the effect of anthropomorphism on perceived durability through perceived performance risk (See figure 4) (index = .2488, 95% CI = [.054,.469]). As zero is not within the CI this indicates a significant moderating effect of consumer green consumption value on anthropomorphism on the indirect effect via perceived

performance risk (Hayes, 2013). Specifically, the conditional indirect effects reveal that the negative effect of anthropomorphism on perceived durability and perceived performance risk is only significant among consumers with lower green consumption values (effect = -.4528, SE =.215, 95% CI = -.898/-.060). However, there was no effect of anthropomorphism on perceived durability and performance risk among consumers with high green consumption values (effect = .3064, SE =.220, 95% CI = -.118/.759). Overall, the effects of anthropomorphism on the perceived durability of a product through perceived performance risk diminishes in the presence of green consumer value (see Figure 5).

FIGURE 5 – Moderated mediation model (Study 2)



Note. (1) * = p<.05

5.5 Discussion

The results of Study 2 supplement the findings of Study 1 by establishing the moderating effect of green consumption attitudes on the relationship between anthropomorphism and durability perception. In agreement with our hypotheses, individuals with low green consumption attitudes are found to be more suspicious and possibly cynical of corporate greenwashing (Delmas & Burbano, 2011), the study finds that consumers displaying lower green consumption attitudes perceive anthropomorphised products to have greater perceived performance risk (H_4) and lesser durability (H_3) than non-

anthropomorphised products. These empirical findings add support to our theory that people with lower green consumption attitudes empathise less with nature (Berenguer, 2007) and as a consequence, they may also have a less tangible bonds with anthropomorphised than non-anthropomorphised objects. In individuals with higher green consumption attitudes, the anthropomorphised condition had a non-significant lower performance risk and higher durability perception than the non-anthropomorphised condition. We propose that the congruity between anthropomorphised and non-anthropomorphised product design could be due to the "greener" individuals having more interest in the product environmentally friendliness (Luchs et al., 2010) than the product's aesthetics or the durability.

Chapter 6. General Discussion and Conclusion

6.1 General discussion

Anthropomorphism has long had relevance in the marketing landscape. It is as interesting to today's researchers as ever, given the move to online commerce and the many challenges facing marketers in that hyper-competitive environment. Layered on top of the online paradigm is the concurrent rise of green culture and the new awareness of long and wasteful supply chains. Research suggests that anthropomorphising a product can benefit consumers in terms of fulfilling their needs for belonging (Chen et al., 2018) and helping them make sense of unfamiliar situations (Yang et al.,2020); however, it also suggests that anthropomorphism can be perceived as a potential challenge to some consumers with its association with increased social risks in cultural destinations (Puzakova & Aggarwal, 2020), among those that are agentic orientated when prices are increased (Kwak et al., 2015), and when individuals have distinctive motivations (Puzakova & Aggarwal (2018). This research has encompassed multiple aspects of anthropomorphism embarking on two experiments which returned significant findings.

The results of the two studies- conducted across two disparate consumer groups (undergraduate university students and MTurk workers from the United States) and using varied product stimuli (hand-held blender and a refrigerator) - provide robust findings that product anthropomorphism affects durability perceptions.

It can be inferred that these outcomes are caused by anthropomorphised products imbuing a perception of human-like susceptibility (Epley et al., 2007) and therefore that they are subconsciously considered by the consumer as fragile and more susceptible to damage and deterioration. This fragility can manifest in the consumer as distrust of the product's ability to do the job or caring behaviour towards the product. This may include further humanising like naming (Roesler et al., 2022).

Research further suggests when a product is anthropomorphised, it may elicit a more caring attitude from consumers because of its perceived vulnerability (Wang & Mukhopadhyay, 2015). This vulnerability could potentially be linked to product durability perception as durability is closely linked to the life expectancy of a product (Cooper, 2005). This conflation may implicitly remind consumers of their fragility and by extension, their own impermanence. An anthropomorphised product by association will have a finite lifespan and may be perceived to suffer from human foibles and shortcomings and therefore reinforcing an assessment of fragility.

In addition, we found support for the concept that performance risk mediates the relationship between anthropomorphism and durability perception when controlling for cuteness and mood and when not controlling for either. Participants perceived greater performance risk for products in the anthropomorphism (vs. non-anthropomorphism) condition and this increase in risk was associated with lesser durability. This can be explained by the effectance motivation determinant where anthropomorphised products feed an

increased perception of the product having shared experiences with the consumer during its life, leading potential owners to consider products as being susceptible to human like deterioration. This deterioration would engender perceptions of poor functionality and would consequently result in a higher perception of risk. This increase in perceived risk would therefore make the product seem less durable (Wang et al., 2022) and more likely to require inordinate care.

Study 2 supplement the findings of Study 1 by establishing the moderating effect of green consumption attitudes on the relationship between anthropomorphism and durability perception. In accordance with our hypotheses, consumers with low green consumption attitudes are found to be more wary and possibly cynical of corporate greenwashing (Delmas & Burbano, 2011). Study 2 finds that consumers displaying lower green consumption attitudes perceive anthropomorphised products to have greater perceived performance risk (H_4) and lesser durability (H_3) than non-anthropomorphised products. These empirical findings add support to our theory that people with lower green consumption attitudes empathise less with nature and natural (anthropomorphised) forms (Berenguer, 2007). As a consequence, they may also have a less tangible bond with living things than with inanimate objects and therefore are less able to recognise and be influenced by anthropomorphised cues. It should be noted that for individuals higher in green consumption attitudes, the anthropomorphised condition had an insignificantly lower performance risk and higher durability perception than the non-anthropomorphised condition. We propose that this lack in divergence between anthropomorphised and non-anthropomorphised product design could be due to the "greener" individuals having a more pronounced interest in the product functionality and manufacture being green (Luchs et al., 2010) than the aesthetics or for that matter in the longevity of the product.

6.2 Theoretical contributions

To the best of our knowledge, we are the first to incorporate the constructs of product anthropomorphism, the product attribute of durability and consumer attitudes to green consumption. Our research contributes to theory in the fields of anthropomorphism, product promotional cues, durability, operational research, product research, and marketing strategies.

We are adding to anthropomorphism theory in several ways. First, by challenging the general findings that anthropomorphism exerts almost universally positive effects on product perceptions (Aggarwal & McGill, 2007; Apaloaza et al., 2022; Barney et al., 2022; Chandler & Schwarz, 2010; Chen et al., 2017; Chen et al., 2018; Chen et al., 2022; Crolic et al., 2022; Thomson et al., 2005; Veer, 2013). This research adds to the emerging literature on the negative consequence of anthropomorphism in the marketplace (Puzakova & Aggarwal, 2018; Puzakova & Kwak, 2017; Waytz et al., 2010) and further by identifying the negative effects of product anthropomorphism in a significantly important domain- perceived product durability. More importantly, we contribute to the literature on anthropomorphism and perceptions of durability by identifying anthropomorphism as a novel antecedent of perceived product durability. Anthropomorphising a product can result in a lowering of the product's perceived durability and when anthropomorphised, consumers that are low in green consumption attitudes perceive a product to have more performance risk and less durability.

We additionally enhance existing product perception literature by demonstrating that anthropomorphism is a negative antecedent of durability and brings with it perceived performance risk. This performance risk can lead consumers to perceive anthropomorphised products as having lower durability. We also contribute to green consumption values literature by adding to the understanding how product cues such as anthropomorphism, shape perceptions of their product.

This research also highlights an important managerial implication regarding the use and or the avoidance of product anthropomorphism to shape durability perceptions. The research definitively informs practitioners who require their products to portray durability that their campaign will benefit if they avoid anthropomorphic cue association with their products

6.3 Managerial Implications

One rationale underlying marketers' use of anthropomorphism is the ability to make a more robust connection with their customers (Delbaere et al., 2011). However, there is existing research that indicates the conditions and market segments under which anthropomorphising product offerings might lead to undesirable outcomes. These sectors include destination travel (Kwak et al., 2020), gaming machines (Kim & McGill, 2011), crowded environments (Puzakova & Kwak, 2017), for agency-orientated customers (Kwak et al., 2015), entity theorists (Puzakova et al., 2013) and individuals with a high distinctiveness motivation (Puzakova & Aggarwal (2018).

Our research identifies a further sector and consumer group for which there is an adverse consequence of deploying anthropomorphism. That being a product where perceived durability is a purchase prerequisite. Specifically, our findings reveal that anthropomorphism can increase a product's perceived performance risk, which in turn decreases its perceived durability. These findings are especially relevant to durable products with a physical form. Hence, product designers and advertising managers will benefit from this research if durability is a desired product characteristic. As exemplified in our studies, anthropomorphism could be manipulated through the physical appearance of the product and communication elements. Practitioners should avoid imbuing physical design and communication elements that generate anthropomorphic perceptions from consumers in certain circumstances. Our research offers practical insights and actionable managerial

direction for marketers through the identification of value or lack thereof in pursuing an anthropomorphised product strategy. This research offers guidance which may prevent the inadvertent alienation of a significant non-green demographic in society. Our recommendation then, is to avoid the use of anthropomorphic cues if product durability is important to the brand concept. It is further recommended that if the products target demographic is durability sensitive and they do not display green values, anthropomorphic concepts should not be introduced as these product cues will make the item seem riskier and less durable. For those with more green-friendly attitudes, the anthropomorphic design had a neutral or mildly positive effect on durability perception which however was not found to be significant. Thus, we advise practitioners to be mindful of this research when developing product designs and advertising strategies and that they carefully manage consumers' perceptions of durability.

6.4 Limitations and future research

Although this study provides a valuable insight to marketing practitioners or researchers concerning the use of anthropomorphism in promotion and product design, there are also some limitations that may stimulate future research. Our study involved the use of two cohorts. The first group consisted of undergraduates at an Australian university, aged between 18 to 29 years. Given the makeup of this cohort, there could be issues with sampling bias due to the sample being comprised of university students who are not representative of the broad population. University students also may be more susceptible to attitude changes and possess stronger cognitive skills than samples reflecting a wider range of age and experience (Sears, 1986).

This potential bias was reduced by launching a similar study (Sears,1986), using a more representative sample, Study 2. This second group consisted of a non-specific cohort of

American participants who were accessed through Amazon MTurk. The participants were randomly selected but all were paid a small fee to respond. As there was a wide variety of ages (21 to 76 years), it is likely that they were a more representative sample. However, due to the low level of remuneration (US$0.75), it is likely there were self-imposed time constraints as well as those imposed by Amazon MTurk.

A further limitation on our research can be found in the nature of the experiments which are not an accurate representation of reality, as they are artificial constructs (Belk, 2013). The artificial environment presents unrepresentative depictions of empirical populations and provides a poor simulation of reality (Webster & Sell, 2007). This research method allows for the strengthening of internal validity by diminishing confounding effects (Mark & Reichardt, 2001), however, there are challenges in reducing the threat to external validity and generalisability of findings to real-life settings.

We expect the findings of our research may not generalise to consumables and digital products, where durability is not a significant factor. Further research could investigate these product categories to find support for this assertion. Furthermore, more extensive research into anthropomorphism and perceived durability can be conducted for a more detailed understanding of their relationship. In the present study, we did not test the effect of anthropomorphised mascots or spokes characters on consumer attitudes to our product's durability. This would be a reasonable next step for future researchers because even more brands have mascots that are anthropomorphised and having these features in their promotions may have an effect on how their product is perceived.

6.5 Conclusion

In conclusion, we have conducted two experiments into the anthropomorphism of product design looking at its effect on product durability, with a diverse cohort of

respondents. These experiments have yielded several significant results which infer cause and effect. The analysis of the data collected has provided actionable advice which enhances the pool of research available to the marketing community. This research will enable insight which will help future researchers to advance the field.

References

Aaker, J. L. (1997). Dimensions of brand personality. *Journal of marketing research*, 34(3), 347-356. https://doi.org/10.1177/002224379703400304

Aggarwal, P., & McGill, A. L. (2007). Is that car smiling at me? Schema congruity as a basis for evaluating anthropomorphized products. *Journal of consumer research*, 34(4), 468-479. https://doi.org/10.1086/518544

Aggarwal, P., & McGill, A. L. (2012). When brands seem human, do humans act like brands? Automatic behavioral priming effects of brand anthropomorphism. *Journal of consumer research*, 39(2), 307-323. https://doi.org/10.1086/662614

Aguirre-Rodriguez, A. (2014). Cultural factors that impact brand personification strategy effectiveness. *Psychology & Marketing*, *31*(1), 70-83. **https://doi.org/10.1002/mar.20676**

Ahn, H. K., Kim, H. J., & Aggarwal, P. (2014). Helping fellow beings: Anthropomorphized social causes and the role of anticipatory guilt. *Psychological science*, 25(1), 224-229. https://doi.org/10.1177/0956797613496823

Akdeniz, B., Calantone, R. J., & Voorhees, C. M. (2013). Effectiveness of marketing cues on consumer perceptions of quality: The moderating roles of brand reputation and third-party information. *Psychology & Marketing*, 30(1), 76-89.

Akdim, K., Belanche, D., & Flavián, M. (2021). Attitudes toward service robots: analyses of explicit and implicit attitudes based on anthropomorphism and construal level theory. *International Journal of Contemporary Hospitality Management*. https://doi.org/10.1108/IJCHM-12-2020-1406

Akturan, U. (2018). How does greenwashing affect green branding equity and purchase intention? An empirical research. *Marketing Intelligence & Planning*, *36*(7), 809–824. https://doi.org/10.1108/MIP-12-2017-0339

Apaolaza, V., Hartmann, P., Paredes, M. R., Trujillo, A., & D'Souza, C. (2022). What motivates consumers to buy fashion pet clothing? The role of attachment, pet anthropomorphism, and self-expansion. *Journal of Business Research*, 141, 367–379. https://doi.org/10.1016/j.jbusres.2021.11.037

Ball, A. D., & Tasaki, L. H. (1992). The role and measurement of attachment in consumer behavior. *Journal of consumer psychology*, 1(2), 155-172. https://doi.org/10.1016/S1057-7408(08)80055-1

Baltas, G., Kokkinaki, F., & Loukopoulou, A. (2017). Does variety seeking vary between hedonic and utilitarian products? The role of attribute type. *Journal of Consumer Behaviour*, 16(6), e1-e12.

Barney, C., Hancock, T., Esmark Jones, C. L., Kazandjian, B., & Collier, J. E. (2022). Ideally human-ish: How anthropomorphized do you have to be in shopper-facing retail technology? *Journal of Retailing*. https://doi.org/10.1016/j.jretai.2022.04.001

Belanche Gracia, D., Casaló, L. V., Schepers, J. J., & Flavián, C. (2021). Examining the effects of robots' physical appearance, warmth, and competence in frontline services: The Humanness-Value-Loyalty model. *Psychology & Marketing*, 38(12), 2357–2376. https://doi.org/10.1002/mar.21532

Berenguer, J. (2007). The effect of empathy in proenvironmental attitudes and behaviors. *Environment and behavior*, *39*(2), 269-283. https://doi.org/10.1177/0013916506292937

Bickmore, T. W., & Picard, R. W. (2005). Establishing and maintaining long-term human-computer relationships. ACM *Transactions on Computer-Human Interaction (TOCHI)*, 12(2), 293-327. https://doi.org/10.1145/1067860.1067867

Bocken, N. M., De Pauw, I., Bakker, C., & Van Der Grinten, B. (2016). Product design and business model strategies for a circular economy. Journal of industrial and production engineering, 33(5), 308-320. https://doi.org/10.1080/21681015.2016.1172124

Borau, S., Otterbring, T., Laporte, S., & Fosso Wamba, S. (2021). The most human bot: Female gendering increases humanness perceptions of bots and acceptance of AI. *Psychology & Marketing*, *38*(7), 1052–1068. https://doi.org/10.1002/mar.21480

Box, J. M. (1983). Extending product lifetime: Prospects and opportunities. *European Journal of marketing.* https://doi.org/10.1108/EUM0000000004830

Brucks, M., Zeithaml, V. A., & Naylor, G. (2000). Price and brand name as indicators of quality dimensions for consumer durables. *Journal of the academy of marketing science*, 28, 359-374. https://doi.org/10.1177/0092070300283005

Bryman, A. (2016). *Social research methods*. Oxford university press.

Butterfield, M. E., Hill, S. E., & Lord, C. G. (2012). Mangy mutt or furry friend? Anthropomorphism promotes animal welfare. *Journal of Experimental Social Psychology*, *48*(4), 957–960. https://doi.org/10.1016/j.jesp.2012.02.010

Chandler, J., & Schwarz, N. (2010). Use does not wear ragged the fabric of friendship: Thinking of objects as alive makes people less willing to replace them. *Journal of Consumer Psychology*, 20(2), 138-145. https://doi.org/10.1016/j.jcps.2009.12.008

Chartrand, T. L., Fitzsimons, G. M., & Fitzsimons, G. J. (2008). Automatic effects of anthropomorphized objects on behavior. *Social Cognition*, 26(2), 198-209. https://doi.org/10.1521/soco.2008.26.2.198

Chen, F., Chen, R. P., & Yang, L. (2020). When Sadness Comes Alive, Will It Be Less Painful? The Effects of Anthropomorphic Thinking on Sadness Regulation and Consumption. Journal of Consumer Psychology, 30(2), 277–295. https://doi.org/10.1002/jcpy.1137

Chen, F., Sengupta, J., & Adaval, R. (2018). Does endowing a product with life make one feel more alive? The effect of product anthropomorphism on consumer vitality. *Journal of the Association for Consumer Research*, 3(4), 503-513.

Chen, K.-J., & Lin, J.-S. (2021). Revisiting the effects of anthropomorphism on brand relationship outcomes: the moderating role of psychological disposition. *European Journal of Marketing*, 55(8), 2174–2200. https://doi.org/10.1108/EJM-07-2018-0471

Chen, R. P., Wan, E. W., & Levy, E. (2017). The effect of social exclusion on consumer preference for anthropomorphized brands. *Journal of Consumer Psychology*, 27(1), 23-34. https://doi.org/10.1016/j.jcps.2016.05.004

Chen, S., Wei, H., Ran, Y., Li, Q., & Meng, L. (2021). Waiting for a download: The effect of congruency between anthropomorphic cues and shopping motivation on consumer patience. Psychology & Marketing, 38(12), 2327–2338. https://doi.org/10.1002/mar.21564

Chen, S., Wei, H., Ran, Y., Li, Q., & Meng, L. (2021). Waiting for a download: The effect of congruency between anthropomorphic cues and shopping motivation on consumer patience. *Psychology & Marketing*, 38(12), 2327-2338.

Chen, T., Razzaq, A., Qing, P., & Cao, B. (2021). Do you bear to reject them? The effect of anthropomorphism on empathy and consumer preference for unattractive produce. *Journal of Retailing and Consumer Services*, 61, 102556–. https://doi.org/10.1016/j.jretconser.2021.102556

Cheng, J. S. (2019). The rhetoric of Hello Kitty. Res: *Anthropology and Aesthetics*, 71(1), 265-283.

Cho, S. (2012). *Aesthetic and value judgment of neotenous objects: Cuteness as a design factor and its effects on product evaluation* (Doctoral dissertation, University of Michigan).

Choi, S., Mattila, A. S., & Bolton, L. E. (2021). To Err Is Human(-oid): How Do Consumers React to Robot Service Failure and Recovery? *Journal of Service Research : JSR*, *24*(3), 354–371. https://doi.org/10.1177/1094670520978798

Coca-Cola. (n.d.). *The History of the Coca-Cola Contour Bottle*. https://www.coca-colacompany.com/company/history/the-history-of-the-coca-cola-contour-bottle

Cooper, T. (2005). Slower consumption reflections on product life spans and the "throwaway society". *Journal of industrial Ecology*, 9(1-2), 51-67. https://doi.org/10.1162/1088198054084671
Coppola, D. (2021, October 13). *Global number of digital buyers 2014-2021.* Statista. Retrieved from https://www.statista.com/statistics/251666/number-of-digital-buyers-worldwide/
Cox, W. E. (1967). Product life cycles as marketing models. *The journal of business*, 40(4), 375-384.
Creswell, John W. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage publications, 2013.
Crolic, C., Thomaz, F., Hadi, R., & Stephen, A. T. (2022). Blame the Bot: Anthropomorphism and Anger in Customer–Chatbot *Interactions. Journal of Marketing*, 86(1), 132–148. https://doi.org/10.1177/00222429211045687
Dalman, M. D., Agarwal, M. K., & Min, J. (2021). Impact of brand anthropomorphism on ethical judgment: the roles of failure type and loneliness. *European Journal of Marketing*, 55(11), 2917–2944. https://doi.org/10.1108/EJM-10-2019-0788
De Visser, E. J., Monfort, S. S., McKendrick, R., Smith, M. A. B., McKnight, P. E., Krueger, F., & Parasuraman, R. (2016). Almost Human: Anthropomorphism Increases Trust Resilience in Cognitive Agents. *Journal of Experimental Psychology. Applied*, *22*(3), 331–349. https://doi.org/10.1037/xap0000092
Delbaere, M., McQuarrie, E. F., & Phillips, B. J. (2011). Personification in advertising. *Journal of Advertising*, *40*(1), 121-130. https://doi.org/10.2753/JOA0091-3367400108
Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California management review*, *54*(1), 64-87. https://doi.org/10.1525/cmr.2011.54.1.64
Den Hollander, M. C., & Bakker, C. A. (2012). A business model framework for product life extension.
Deshmukh, G. K., & Das, R. P. (2012). Consumer buying behaviour for high involvement products-a study. *Asian Journal of Management*, *3*(3), 153-157.
Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of marketing research*, 37(1), 60-71.
Ding, Y., & Xu, S. (2022). Detrimental impact of contagious disease cues on consumer preference for anthropomorphic products. Marketing Letters, 1–15. https://doi.org/10.1007/s11002-022-09614-x
Dootson, P., Greer, D. A., Letheren, K., & Daunt, K. L. (2022). Reducing deviant consumer behaviour with service robot guardians. *The Journal of Services Marketing.* https://doi.org/10.1108/JSM-11-2021-0400
Dossche, M., & Saiz, L. (2018). Consumption of durable goods in the ongoing economic expansion. *Economic Bulletin Boxes*, 1.
Downey, H., & Ellis, S. (2008). Tails of animal attraction: Incorporating the feline into the family. *Journal of Business Research*, 61(5), 434-441. https://doi.org/10.1016/j.jbusres.2007.07.015
Elliott, R. (2013). The taste for green: The possibilities and dynamics of status differentiation through "green" consumption. Poetics (Amsterdam), 41(3), 294–322. https://doi.org/10.1016/j.poetic.2013.03.003
Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T. (2008). Creating social connection through inferential reproduction: Loneliness and perceived agency in gadgets, gods, and greyhounds. *Psychological science*, 19(2), 114-120. https://doi.org/10.1111/j.1467-9280.2008.02056.x
Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: a three-factor theory of anthropomorphism. *Psychological review*, 114(4), 864. https://doi.org/10.1037/0033-295X.114.4.864
Eren-Erdogmus, İ., Lak, H. S., & Çiçek, M. (2016). Attractive or credible celebrities: Who endorses green products better?. *Procedia-Social and Behavioral Sciences*, *235*, 587-594. https://doi.org/10.1016/j.sbspro.2016.11.085

Ericksen, M. K. (1997). Using self-congruity and ideal congruity to predict purchase intention: A European perspective. *Journal of Euromarketing*, 6(1), 41-56. https://doi.org/10.1300/J037v06n01_04

Escalas, J. E., & Bettman, J. R. (2003). You are what they eat: The influence of reference groups on consumers' connections to brands. Journal of consumer psychology, 13(3), 339-348.

Fan, A., Wu, L. (Laurie), & Mattila, A. S. (2016). Does anthropomorphism influence customers' switching intentions in the self-service technology failure context? *The Journal of Services Marketing*, 30(7), 713–723. https://doi.org/10.1108/JSM-07-2015-0225

Fiore, A. M., Jin, H. J., & Kim, J. (2005). For fun and profit: Hedonic value from image interactivity and responses toward an online store. *Psychology & Marketing*, 22(8), 669-694.

Folse, J. A. G., Burton, S., & Netemeyer, R. G. (2013). Defending Brands: Effects of Alignment of Spokescharacter Personality Traits and Corporate Transgressions on Brand Trust and Attitudes. *Journal of Advertising*, *42*(4), 331–342. https://doi.org/10.1080/00913367.2013.795124

Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research. *Journal of consumer research*, 24(4), 343-373. https://doi.org/10.1086/209515

Freling, T. H., Crosno, J. L., & Henard, D. H. (2011). Brand personality appeal: conceptualization and empirical validation. *Journal of the Academy of Marketing* Science, 39(3), 392-406. https://doi.org/10.1007/s11747-010-0208-3

Garvey, A. M., Kim, T., & Duhachek, A. (2022). Bad News? Send an AI. Good News? Send a Human. *Journal of Marketing*, 2224292110669–. https://doi.org/10.1177/00222429211066972

Glocker, M. L., Langleben, D. D., Ruparel, K., Loughead, J. W., Gur, R. C., & Sachser, N. (2009). Baby schema in infant faces induces cuteness perception and motivation for caretaking in adults. *Ethology*, 115(3), 257-263. https://doi.org/10.1111/j.1439-0310.2008.01603.x

Golossenko, A., Pillai, K. G., & Aroean, L. (2020). Seeing brands as humans: Development and validation of a brand anthropomorphism scale. *International Journal of Research in Marketing*, *37*(4), 737–755. https://doi.org/10.1016/j.ijresmar.2020.02.007

Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: status, reputation, and conspicuous conservation. *Journal of personality and social psychology*, *98*(3), 392.

Guido, G., & Peluso, A. M. (2015). Brand anthropomorphism: Conceptualization, measurement, and impact on brand personality and loyalty. *Journal of Brand Management*, 22(1), 1-19. https://doi.org/10.1057/bm.2014.40

Guthrie, S. E. (1995). *Faces in the clouds: A new theory of religion*. Oxford University Hayes, Andrew. F. (2013), Introduction to Mediation, Moderation, and Con- ditional Process Analysis: A Regression-Based Approach, New York: Guil- ford.

Han, N. R., Baek, T. H., Yoon, S., & Kim, Y. (2019). Is that coffee mug smiling at me? How anthropomorphism impacts the effectiveness of desirability vs. feasibility appeals in sustainability advertising. Journal of Retailing and Consumer Services, 51, 352–361. https://doi.org/10.1016/j.jretconser.2019.06.020

Hagtvedt, H. (2020). Dark is durable, light is user-friendly: The impact of color lightness on two product attribute judgments. Psychology & Marketing, 37(7), 864-875. https://doi.org/10.1002/mar.21268

Himmelfarb, S., & Lickteig, C. (1982). Social desirability and the randomized response technique. *Journal of Personality and Social Psychology*, 43(4), 710–717. https://doi.org/10.1037/0022-3514.43.4.710

Hildebrandt, K. A., & Fitzgerald, H. E. (1979). Facial feature determinants of perceived infant attractiveness. Infant Behavior and Development, 2, 329-339. https://doi.org/10.1016/S0163-6383(79)80043-0

Hu, P., Gong, Y., Lu, Y., & Ding, A. W. (2022). Speaking vs. listening? Balance conversation attributes of voice assistants for better voice marketing. International Journal of Research in Marketing. https://doi.org/10.1016/j.ijresmar.2022.04.006

Huaman-Ramirez, R., Lunardo, R., & Vasquez-Parraga, A. (2022). How brand self-disclosure helps brands create intimacy with customers: The role of information valence and anthropomorphism. Psychology & Marketing, 39(2), 460–477. https://doi.org/10.1002/mar.21609

Huang, F., Wong, V. C., & Wan, E. W. (2020). The Influence of Product Anthropomorphism on Comparative Judgment. *The Journal of Consumer Research*, 46(5), 936–955. https://doi.org/10.1093/jcr/ucz028

Hudson, S., Huang, L., Roth, M. S., & Madden, T. J. (2016). The influence of social media interactions on consumer–brand relationships: A three-country study of brand perceptions and marketing behaviors. *International Journal of Research in Marketing*, *33*(1), 27–41. https://doi.org/10.1016/j.ijresmar.2015.06.004

Hur, J. D., Koo, M., & Hofmann, W. (2015). When Temptations Come Alive: How Anthropomorphism Undermines Self-Control. *The Journal of Consumer Research*, 42(2), 340–358. https://doi.org/10.1093/jcr/ucv017

Jacoby, J., Olson, J. C., & Haddock, R. A. (1971). Price, brand name, and product composition characteristics as determinants of perceived quality. *Journal of applied psychology*, 55(6), 570.

Jayarajan, D., Siddarth, S., & Silva-Risso, J. (2018). Cannibalization vs. competition: An empirical study of the impact of product durability on automobile demand. *International Journal of Research in Marketing*, 35(4), 641-660. https://doi.org/10.1016/j.ijresmar.2018.09.001

Jerath, K., & Ren, Q. (2021). Consumer rational (in) attention to favorable and unfavorable product information, and firm information design. *Journal of Marketing Research*, 58(2), 343-362.

Karampournioti, E., Hennigs, N., & Wiedmann, K. (2018). When pain is pleasure: Identifying consumer psychopaths. *Psychology & Marketing*, *35*(4), 268–282. https://doi.org/10.1002/mar.21085

Keating, C. F., Randall, D. W., Kendrick, T., & Gutshall, K. A. (2003). Do babyfaced adults receive more help? The (cross-cultural) case of the lost resume. *Journal of Nonverbal Behavior*, 27(2), 89-109. https://doi.org/10.1023/A:1023962425692

Keaveney, S. M., Herrmann, A., Befurt, R., & Landwehr, J. R. (2012). The Eyes Have It: How a Car's Face Influences Consumer Categorization and Evaluation of Product Line Extensions. *Psychology & Marketing*, 29(1), 36–51. https://doi.org/10.1002/mar.20501

Kempf, D. S. (1999). Attitude formation from product trial: Distinct roles of cognition and affect for hedonic and functional products. *Psychology & Marketing*, 16(1), 35-50.

Kenton, W. (2022). Durables. Retrieved from https://www.investopedia.com/terms/d/durables.asp#:~:text=Examples%20of%20consumer%20durable%20goods,and%20home%20and%20office%20furnishings.

Ketron, S., & Naletelich, K. (2019). Victim or beggar? Anthropomorphic messengers and the savior effect in consumer sustainability behavior. *Journal of Business Research*, 96, 73–84. https://doi.org/10.1016/j.jbusres.2018.11.004

Khan, U., Dhar, R., & Wertenbroch, K. (2005). A behavioral decision theory perspective on hedonic and utilitarian choice. *Inside consumption: Frontiers of research on consumer motives, goals, and desires*, 1, 144-165

Khan, U., Dhar, R., & Wertenbroch, K. (2005). A behavioral decision theory perspective on hedonic and utilitarian choice. In *Inside consumption* (pp. 166-187). Routledge.

Kim, H. C., & Kramer, T. (2015). Do Materialists Prefer the "Brand-as-Servant"? The Interactive Effect of Anthropomorphized Brand Roles and Materialism on Consumer Responses. The *Journal of Consumer Research*, 42(2), 284–299. https://doi.org/10.1093/jcr/ucv015

Kim, H., & McGill, A. L. (2018). Minions for the Rich? Financial Status Changes How Consumers See Products with Anthropomorphic Features. *The Journal of Consumer Research*, *45*(2), 429–450. https://doi.org/10.1093/jcr/ucy006

Kim, J., & Swaminathan, S. (2021). Time to say goodbye: The impact of anthropomorphism on selling prices of used products. *Journal of Business Research*, *126*, 78–87. https://doi.org/10.1016/j.jbusres.2020.12.046

Kim, S. Y., Schmitt, B. H., & Thalmann, N. M. (2019). Eliza in the uncanny valley: anthropomorphizing consumer robots increases their perceived warmth but decreases liking. *Marketing Letters*, *30*(1), 1–12. https://doi.org/10.1007/s11002-019-09485-9

Kim, S., & McGill, A. L. (2011). Gaming with Mr. Slot or gaming the slot machine? Power, anthropomorphism, and risk perception. *Journal of Consumer Research*, 38(1), 94-107. https://doi.org/10.1086/658148

Kim, T. W., & Duhachek, A. (2020). Artificial Intelligence and Persuasion: A Construal-Level Account. *Psychological Science*, 31(4), 363–380. https://doi.org/10.1177/0956797620904985

Ko, Y. J., Asada, A., Jang, W., Kim, D., & Chang, Y. (2022). Do humanized team mascots attract new fans? Application and extension of the anthropomorphism theory. *Sport Management Review*, 1-27. https://doi.org/10.1080/14413523.2021.2014184

Kwak, H., Puzakova, M., & Rocereto, J. F. (2015). Better Not Smile at the Price: The Differential Role of Brand Anthropomorphization on Perceived Price Fairness. *Journal of Marketing*, 79(4), 56–76. https://doi.org/10.1509/jm.13.0410

Kwak, H., Puzakova, M., Rocereto, J. F., & Moriguchi, T. (2020). When the Unknown Destination Comes Alive: The Detrimental Effects of Destination Anthropomorphism in Tourism. Journal of Advertising, 49(5), 508–524. https://doi.org/10.1080/00913367.2020.1800537

Landwehr, J. R., McGill, A. L., & Herrmann, A. (2011). It's got the look: The effect of friendly and aggressive "facial" expressions on product liking and sales. *Journal of marketing*, 75(3), 132-146. https://doi.org/10.1509/jmkg.75.3.132

Langer, E. J. (1975). The illusion of control. *Journal of personality and social psychology*, 32(2), 311. https://doi.org/10.1037/0022-3514.32.2.311

Lau, S. T. (2020). Introversion and online word-of-mouth behavior: what roles do review website design and product design play?.

Lau, G. T., & Lee, S. H. (1999). Consumers' trust in a brand and the link to brand loyalty. Journal of Market-Focused Management, 4, 341-370. https://doi.org/10.1023/A:1009886520142

Lee, J. C., Kim, S., & Wang, P. X. (2022). Anthropomorphizing makes material goods as happiness-inducing as experiences. Marketing Letters, 33(1), 61–73. https://doi.org/10.1007/s11002-021-09564-w

Lee, S. (Ally), & Oh, H. (2021). Anthropomorphism and its implications for advertising hotel brands. Journal of Business Research, 129, 455–464. https://doi.org/10.1016/j.jbusres.2019.09.053

Letheren, K., Jetten, J., Roberts, J., & Donovan, J. (2021). Robots should be seen and not heard…sometimes: Anthropomorphism and AI service robot interactions. *Psychology & Marketing*, 38(12), 2393–2406. https://doi.org/10.1002/mar.21575

Letheren, K., Kuhn, K.-A. L., Lings, I., & Pope, N. K. L. (2016). Individual difference factors related to anthropomorphic tendency. European Journal of Marketing, 50(5/6), 973–1002. https://doi.org/10.1108/EJM-05-2014-0291

Li, S., Peluso, A. M., & Duan, J. (2023). Why do we prefer humans to artificial intelligence in telemarketing? A mind perception explanation. *Journal of Retailing and Consumer Services*, *70*, 103139. https://doi.org/10.1016/j.jretconser.2022.103139

Lim, W. M., Kumar, S., Verma, S., & Chaturvedi, R. (2022). Alexa, what do we know about conversational commerce? Insights from a systematic literature review. *Psychology & Marketing*, 39(6), 1129–1155. https://doi.org/10.1002/mar.21654

Lin, Y. C., & Chang, C. C. A. (2012). Double standard: The role of environmental consciousness in green product usage. *Journal of Marketing*, *76*(5), 125-134.
Lin, Y.-T., Doong, H.-S., & Eisingerich, A. B. (2021). Avatar Design of Virtual Salespeople: Mitigation of Recommendation Conflicts. Journal of Service Research : JSR, 24(1), 141–159. https://doi.org/10.1177/1094670520964872
Liu, F., Wei, H., Zhu, Z., & Chen, H. (Allan). (2022). Warmth or competence: Brand anthropomorphism, social exclusion, and advertisement effectiveness. *Journal of Retailing and Consumer Services*, 67, 103025–. https://doi.org/10.1016/j.jretconser.2022.103025
Liu, Q., Zhang, X., Huang, S., Zhang, L., & Zhao, Y. (2020). Exploring consumers' buying behavior in a large online promotion activity: The role of psychological distance and involvement. *Journal of theoretical and applied electronic commerce research*, *15*(1), 66-80.
Lteif, L., & Valenzuela, A. (2022). The effect of anthropomorphized technology failure on the desire to connect with others. *Psychology & Marketing*, 39(9), 1762–1774. https://doi.org/10.1002/mar.21700
Luchs, M. G., Naylor, R. W., Irwin, J. R., & Raghunathan, R. (2010). The sustainability liability: Potential negative effects of ethicality on product preference. *Journal of Marketing*, *74*(5), 18-31.
Lund, R. T., & Denney, W. M. (1978). Extending product life: Time to remanufacture. *Management Review*, March, 21, 26.
Luo, X., Tong, S., Fang, Z., & Qu, Z. (2019). Frontiers: Machines vs. Humans: The Impact of Artificial Intelligence Chatbot Disclosure on Customer Purchases. *Marketing Science (Providence, R.I.)*, *38*(6), 937–947. https://doi.org/10.1287/mksc.2019.1192
Mackenzie, D., Cooper, T., & Garnett, K. (2016). Can durability provide a strong marketing platform?. In *Longer Lasting Products (*pp. 323-342). Routledge.
MacInnis, D. J., & Folkes, V. S. (2017). Humanizing brands: When brands seem to be like me, part of me, and in a relationship with me. Journal of Consumer Psychology, 27(3), 355-374. https://doi.org/10.1016/j.jcps.2016.12.003
Mangini, E. R., Amaral, L. M., Conejero, M. A., & Pires, C. S. (2020). Greenwashing Study and Consumers' Behavioral Intentions. *Consumer Behavior Review*, *4*(3), 229-244.
Mariani, M. M., Perez-Vega, R., & Wirtz, J. (2022). AI in marketing, consumer research and psychology: A systematic literature review and research agenda. *Psychology & Marketing*, *39*(4), 755–776. https://doi.org/10.1002/mar.21619
Malaquias, R. F., & Hwang, Y. (2016). An empirical study on trust in mobile banking: A developing country perspective. Computers in human behavior, 54, 453-461. https://doi.org/10.1016/j.chb.2015.08.039
Martin, A. E., & Mason, M. F. (2023). Hey Siri, I love you: People feel more attached to gendered technology. *Journal of Experimental Social Psychology*, *104*, 104402. https://doi.org/10.1016/j.jesp.2022.104402
Masuda, N. (2015). 2 Shojo Manga and Its Acceptance. *International Perspectives on Shojo and Shojo Manga: The Influence of Girl Culture*, 23.
May, F., & Monga, A. (2014). When Time Has a Will of Its Own, the Powerless Don't Have the Will to Wait: Anthropomorphism of Time Can Decrease Patience. *The Journal of Consumer Research*, 40(5), 924–942. https://doi.org/10.1086/673384
Mende, M., Scott, M. L., van Doorn, J., Grewal, D., & Shanks, I. (2019). Service Robots Rising: How Humanoid Robots Influence Service Experiences and Elicit Compensatory Consumer Responses. *Journal of Marketing Research*, 56(4), 535–556. https://doi.org/10.1177/0022243718822827
Merchant, A., LaTour, K. A., Ford, J. B., & LaTour, M. S. (2018). Should Cookie Monster adopt a healthy lifestyle or continue to indulge? Insights into brand icons. *Psychology & Marketing*, *35*(1), 64–78. https://doi.org/10.1002/mar.21071

Mithen, S., & Boyer, P. (1996). Anthropomorphism and the evolution of cognition. *Journal of the Royal Anthropological Institute*, 717-721.
Mittelman, M., Gonçalves, D., & Andrade, E. B. (2020). Out of sight, out of mind: usage frequency considerations in purchase decisions. *Journal of Consumer Psychology*, *30*(4), 652-659. https://doi.org/10.1002/jcpy.1155
Morewedge, C. K., Preston, J., & Wegner, D. M. (2007). Timescale bias in the attribution of mind. Journal of personality and social psychology, 93(1), 1. https://doi.org/10.1037/0022-3514.93.1.1
Nan, X., & Heo, K. (2007). Consumer responses to corporate social responsibility (CSR) initiatives: Examining the role of brand-cause fit in cause-related marketing. *Journal of advertising*, 36(2), 63-74. https://doi.org/10.2753/JOA0091-3367360204
Neave, N., Jackson, R., Saxton, T., & Hönekopp, J. (2015). The influence of anthropomorphic tendencies on human hoarding behaviours. *Personality and Individual Differences*, 72, 214-219. https://doi.org/10.1016/j.paid.2014.08.041
Nenkov, G. Y., & Scott, M. L. (2014). "So cute I could eat it up": Priming effects of cute products on indulgent consumption. *Journal of Consumer Research*, 41(2), 326-341. https://doi.org/10.1086/676581
Neuman. (2014). Social research methods : qualitative and quantitative approaches (Seventh edition, Pearson new international edition. Pearson.
Neuman. (2014). Social research methods : qualitative and quantitative approaches (Seventh edition, Pearson new international edition. Pearson.
O'Connor, T. P. (1997). Working at relationships: another look at animal domestication. *Antiquity*, 71(271), 149-156. https://doi.org/10.1017/S0003598X00084635
Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian goods. *Journal of marketing research*, 42(1), 43-53. https://doi.org/10.1509/jmkr.42.1.43.56889
Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of experimental social psychology*, 45(4), 867-872. https://doi.org/10.1016/j.jesp.2009.03.009
Patterson, A., Khogeer, Y., & Hodgson, J. (2013). How to create an influential anthropomorphic mascot: Literary musings on marketing, make-believe, and meerkats. *Journal of marketing management*, 29(1-2), 69-85. https://doi.org/10.1080/0267257X.2012.759992
Pollo, S., Graziano, M., & Giacoma, C. (2009). The ethics of natural history documentaries.
Pozharliev, R., De Angelis, M., Rossi, D., Romani, S., Verbeke, W., & Cherubino, P. (2021). Attachment styles moderate customer responses to frontline service robots: Evidence from affective, attitudinal, and behavioral measures. *Psychology & Marketing*, 38(5), 881–895. https://doi.org/10.1002/mar.21475
Puzakova, M., & Aggarwal, P. (2018). Brands as rivals: Consumer pursuit of distinctiveness and the role of brand anthropomorphism. *Journal of Consumer Research*, 45(4), 869-888. https://doi.org/10.1093/jcr/ucy035
Puzakova, M., & Kwak, H. (2017). Should anthropomorphized brands engage customers? The impact of social crowding on brand preferences. *Journal of Marketing*, 81(6), 99-115. https://doi.org/10.1509/jm.16.0211
Puzakova, M., & Kwak, H. (2021). Two's Company, Three's a Crowd: The Interplay between Collective versus Solo Anthropomorphic Brand Appeals and Gender. *Journal of Advertising*, ahead-of-print(ahead-of-print), 1–21. https://doi.org/10.1080/00913367.2021.1988774
Puzakova, M., Kwak, H., & Rocereto, J. F. (2013). When Humanizing Brands Goes Wrong: The Detrimental Effect of Brand Anthropomorphization Amid Product Wrongdoings. *Journal of Marketing*, *77*(3), 81–100. https://doi.org/10.1509/jm.11.0510
Rauschnabel, P. A., & Ahuvia, A. C. (2014). You're so lovable: Anthropomorphism and brand love. *Journal of Brand Management*, 21, 372-395. https://doi.org/10.1057/bm.2014.14

Roesler, E., Naendrup-Poell, L., Manzey, D., & Onnasch, L. (2022). Why context matters: the influence of application domain on preferred degree of anthropomorphism and gender attribution in human–robot interaction. *International Journal of Social Robotics*, 1-12.

Rossi, B. (2014). Discussion on the use of stainless steel in constructions in view of sustainability. *Thin-Walled Structures*, *83*, 182-189. https://doi.org/10.1016/j.tws.2014.01.021

Savary, J., Goldsmith, K., & Dhar, R. (2015). Giving against the odds: When tempting alternatives increase willingness to donate. *Journal of Marketing Research*, 52(1), 27-38. https://doi.org/10.1509/jmr.13.0244

Sears, D. O., (1986). College sophomores in the laboratory: Influences of a narrow data base on social psychology's view of human nature. *Journal of personality and social psychology,* 51(3), 515. https://doi.org/10.1037/0022-3514.51.3.515

Sexton, S. E., & Sexton, A. L. (2014). Conspicuous conservation: The Prius halo and willingness to pay for environmental bona fides. *Journal of Environmental Economics and Management*, *67*(3), 303-317. https://doi.org/10.1016/j.jeem.2013.11.004

Sirgy, M. J. (1982). Self-concept in consumer behavior: A critical review. *Journal of consumer research*, 9(3), 287-300. https://doi.org/10.1086/208924

Sirgy, M. J., & Su, C. (2000). Destination image, self-congruity, and travel behavior: Toward an integrative model. *Journal of travel research*, 38(4), 340-352. https://doi.org/10.1177/004728750003800402

Shao, A., & Li, H. (2021). How do utilitarian versus hedonic products influence choice preferences: Mediating effect of social comparison. *Psychology & Marketing*, 38(8), 1250–1261. https://doi.org/10.1002/mar.21520

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of business research*, 22(2), 159-170. https://doi.org/10.1016/0148-2963(91)90050-8

Simon-Kucher & Partners (2021). Global Sustainability Study 2021. https://www.simon-kucher.com/sites/default/files/studies/Simon-Kucher_Global_Sustainability_Study_2021.pdf

Speck, P. S., & Elliott, M. T. (1997). Predictors of advertising avoidance in print and broadcast media. Journal of Advertising, 26(3), 61-76. https://doi.org/10.1080/00913367.1997.10673529

Stafford, M. R., Stafford, T. F., & Day, E. (2002). A contingency approach: The effects of spokesperson type and service type on service advertising perceptions. Journal of advertising, 31(2), 17-35. https://doi.org/10.1080/00913367.2002.10673664

Steinman, R. B. (2019). Priming Consumers for Indulgence. *Business Management Dynamics*, 9(4), 9.

Stewart, K., Kammer-Kerwick, M., Auchter, A., Koh, H. E., Dunn, M. E., & Cunningham, I. (2019). Examining digital video advertising (DVA) effectiveness: The role of product category, product involvement, and device. European Journal of Marketing, 53(11), 2451–2479. https://doi.org/10.1108/EJM-11-2016-0619

Strahilevitz, M., & Myers, J. G. (1998). Donations to charity as purchase incentives: How well they work may depend on what you are trying to sell. *Journal of consumer research*, 24(4), 434-446. https://doi.org/10.1086/209519

Sun, J. J., Bellezza, S., & Paharia, N. (2021). Buy less, buy luxury: Understanding and overcoming product durability neglect for sustainable consumption. *Journal of Marketing*, 85(3), 28-43. https://doi.org/10.1177/0022242921993172

Sundar, S. S. (2004). Loyalty to computer terminals: is it anthropomorphism or consistency?. *Behaviour & Information Technology*, 23(2), 107-118. https://doi.org/10.1080/01449290310001659222

Tam, K.-P., Lee, S.-L., & Chao, M. M. (2013). Saving Mr. Nature: Anthropomorphism enhances connectedness to and protectiveness toward nature. *Journal of Experimental Social Psychology*, 49(3), 514–521. https://doi.org/10.1016/j.jesp.2013.02.001

Tassiello, V., Tillotson, J. S., & Rome, A. S. (2021). "Alexa, order me a pizza!": The mediating role of psychological power in the consumer–voice assistant interaction. *Psychology & Marketing*, *38*(7), 1069–1080. https://doi.org/10.1002/mar.21488

Taylor, D. G., Strutton, D., & Thompson, K. (2012). Self-enhancement as a motivation for sharing online advertising. Journal of Interactive Advertising, 12(2), 13-28. https://doi.org/10.1080/15252019.2012.10722193

Thomson, M., MacInnis, D. J., & Whan Park, C. (2005). The ties that bind: Measuring the strength of consumers' emotional attachments to brands. *Journal of consumer psychology*, 15(1), 77-91. https://doi.org/10.1207/s15327663jcp1501_10

Timpano, K. R., & Shaw, A. M. (2013). Conferring humanness: The role of anthropomorphism in hoarding. *Personality and Individual Differences*, 54(3), 383-388. https://doi.org/10.1016/j.paid.2012.10.007

Touré-Tillery, M., & McGill, A. L. (2015). Who or What to Believe: Trust and the Differential Persuasiveness of Human and Anthropomorphized Messengers. *Journal of Marketing*, *79*(4), 94–110. https://doi.org/10.1509/jm.12.0166

Van Den Berge, R., Magnier, L., & Mugge, R. (2021). Too good to go? Consumers' replacement behaviour and potential strategies for stimulating product retention. *Current opinion in psychology*, *39*, 66-71. https://doi.org/10.1016/j.copsyc.2020.07.014

Van Esch, P., Arli, D., Gheshlaghi, M. H., Andonopoulos, V., von der Heidt, T., & Northey, G. (2019). Anthropomorphism and augmented reality in the retail environment. Journal of Retailing and Consumer Services, 49, 35–42. https://doi.org/10.1016/j.jretconser.2019.03.002

Van den Hende, E. A., & Mugge, R. (2014). Investigating gender-schema congruity effects on consumers' evaluation of anthropomorphized products. *Psychology & Marketing*, 31(4), 264-277.https://doi.org/10.1002/mar.20693

Van Nes, N., & Cramer, J. (2006). Product lifetime optimization: a challenging strategy towards more sustainable consumption patterns. Journal of Cleaner Production, 14(15-16), 1307-1318. https://doi.org/10.1016/j.jclepro.2005.04.006

Van Prooijen, A.-M., & Bartels, J. (2019). Anthropomorphizing brands: The role of attributed brand traits in interactive CSR communication and consumer online endorsements. Journal of Consumer Behaviour, 18(6), 474–483. https://doi.org/10.1002/cb.1786

Van Tilburg, M., Lieven, T., Herrmann, A., & Townsend, C. (2015). Beyond "Pink It and Shrink It" Perceived Product Gender, Aesthetics, and Product Evaluation. Psychology & Marketing, 32(4), 422–437. https://doi.org/10.1002/mar.20789

Veale, R., Quester, P., & Karunaratna, A. (2006, July). The role of intrinsic (sensory) cues and the extrinsic cues of country of origin and price on food product evaluation. In *3rd International Wine Business & Marketing Research Conference* (pp. 1-17).

Veer, E. (2013). Made with real crocodiles: The use of anthropomorphism to promote product kinship in our youngest consumers. *Journal of Marketing Management*, 29(1-2), 195-206. https://doi.org/10.1080/0267257X.2012.759990

Velasco, F., Yang, Z., & Janakiraman, N. (2021). A meta-analytic investigation of consumer response to anthropomorphic appeals: The roles of product type and uncertainty avoidance. *Journal of Business Research*, *131*, 735–746. https://doi.org/10.1016/j.jbusres.2020.11.015

Wallendorf, M., & Arnould, E. J. (1988). "My favorite things": A cross-cultural inquiry into object attachment, possessiveness, and social linkage. Journal of Consumer Research, 14(4), 531-547. https://doi.org/10.1086/209134

Wan, E. W., & Chen, R. P. (2021). Anthropomorphism and object attachment. *Current Opinion in Psychology*, 39, 88-93.
Wang, L. C., Baker, J., Wagner, J. A., & Wakefield, K. (2007). Can a retail web site be social?. *Journal of marketing*, 71(3), 143-157. https://doi.org/10.1509/jmkg.71.3.143
Wang, T., & Mukhopadhyay, A. (2015). 11 How Consumers Respond to Cute Products. *The psychology of design: Creating consumer appeal.*
Waytz, A., Heafner, J., & Epley, N. (2014). The mind in the machine: Anthropomorphism increases trust in an autonomous vehicle. *Journal of Experimental Social Psychology*, 52, 113-117. https://doi.org/10.1016/j.jesp.2014.01.005
Waytz, A., Morewedge, C. K., Epley, N., Monteleone, G., Gao, J. H., & Cacioppo, J. T. (2010). Making sense by making sentient: effectance motivation increases anthropomorphism. *Journal of personality and social psychology*, 99(3), 410. https://doi.org/10.1037/a0020240
Webster Jr, M., & Sell, J. (2014). Why do experiments?. In Laboratory experiments in the social sciences (pp. 5-21). Academic Press. https://doi.org/10.1016/B978-0-12-404681-8.00001-7
Wells, V. K., Ponting, C. A., & Peattie, K. (2011). Behaviour and climate change: Consumer perceptions of responsibility. Journal of Marketing Management, 27(7-8), 808–833. https://doi.org/10.1080/0267257X.2010.500136
Wen, J., & Song, B. (2017). Corporate ethical branding on YouTube: CSR communication strategies and brand anthropomorphism. *Journal of Interactive Advertising*, 17(1), 28-40. https://doi.org/10.1080/15252019.2017.1295291
White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the mind-set that matters: The role of construal level and message framing in influencing consumer efficacy and conservation behaviors. *Journal of Marketing Research*, *48*(3), 472-485.
Windhager, S., Slice, D. E., Schaefer, K., Oberzaucher, E., Thorstensen, T., & Grammer, K. (2008). Face to face. *Human Nature*, 19(4), 331-346. https://doi.org/10.1007/s12110-008-9047-z
Xiao, L., Guo, F., Yu, F., & Liu, S. (2019). The effects of online shopping context cues on consumers' purchase intention for cross-border E-Commerce sustainability. *Sustainability*, 11(10), 2777. https://doi.org/10.3390/su11102777
Xie, Y., Chen, K., & Guo, X. (2020). Online anthropomorphism and consumers' privacy concern: Moderating roles of need for interaction and social exclusion. *Journal of Retailing and Consumer Services*, 55, 102119–. https://doi.org/10.1016/j.jretconser.2020.102119
Xie, Z., Yu, Y., Zhang, J., & Chen, M. (2022). The searching artificial intelligence: Consumers show less aversion to algorithm-recommended search product. *Psychology & Marketing*, 39(10), 1902–1919. https://doi.org/10.1002/mar.21706
Yam, K. C., Goh, E.-Y., Fehr, R., Lee, R., Soh, H., & Gray, K. (2022). When your boss is a robot: Workers are more spiteful to robot supervisors that seem more human. *Journal of Experimental Social Psychology*, 102, 104360–. https://doi.org/10.1016/j.jesp.2022.104360
Yan, L., Keh, H. T., & Chen, J. (2021). Assimilating and differentiating: the curvilinear effect of social class on green consumption. *Journal of Consumer Research*, *47*(6), 914-936.
Yang, L. W., Aggarwal, P., & McGill, A. L. (2020). The 3 C's of anthropomorphism: Connection, comprehension, and competition. *Consumer Psychology Review,* 3(1), 3–19. https://doi.org/10.1002/arcp.1054
Yim, M. Y. C., Yoo, S. C., Sauer, P. L., & Seo, J. H. (2014). Hedonic shopping motivation and co-shopper influence on utilitarian grocery shopping in superstores. *Journal of the Academy of Marketing Science*, 42(5), 528-544.
Yuan, C., Zhang, C., & Wang, S. (2022). Social anxiety as a moderator in consumer willingness to accept AI assistants based on utilitarian and hedonic values. *Journal of Retailing and Consumer Services*, 65, 102878–. https://doi.org/10.1016/j.jretconser.2021.102878

Zhang, M., Li, L., Ye, Y., Qin, K., & Zhong, J. (2020). The effect of brand anthropomorphism, brand distinctiveness, and warmth on brand attitude: A mediated moderation model. *Journal of Consumer Behaviour*, 19(5), 523–536. https://doi.org/10.1002/cb.1835

Zhou, X., Kim, S., & Wang, L. (2019). Money Helps When Money Feels: Money Anthropomorphism Increases Charitable Giving. *The Journal of Consumer Research*, *45*(5), 953–972. https://doi.org/10.1093/jcr/ucy012

Zhu, H., Wong, N., & Huang, M. (2019). Does relationship matter? How social distance influences perceptions of responsibility on anthropomorphized environmental objects and conservation intentions. *Journal of Business Research*, *95*,62–70. https://doi.org/10.1016/j.jbusres.2018.10.00

Zwarun, L., & Hall, A. (2014). What's going on? Age, distraction, and multitasking during online survey taking. *Computers in human behavior*, 41, 236-244. https://doi.org/10.1016/j.chb.2014.09.041

Appendices

Appendix A

Literature review table

Citation	IV	DV	Mediators	Moderators	Focus/Aim of Study
1. **Aggarwal, & McGill (2007)** *Journal of consumer research.* Is that car smiling at me? Schema congruity as a basis for evaluating anthropomorphized products	– Schema prime (S1&2: human, object & bottle sizes), (S2: same & different sized bottles), (S3: twin, evil twin), – Facial feature (S1: smile, frown), – Car model (S1: Thunderbird, Lexus) – Bottle sizes (S3: same, different	– Anthropomorphism (scale measuring the extent to which the car was seen as human [S1], reminded them of family [S2] reminded them of twins [S3])	– Participants' perception of the car as a person	– Affective tag (good twins (e.g., using phrases such as "we are the beverage twins who will do any parents proud," and evil twins ("you will be sorry if you don't choose one of us," etc.).	– Provides a framework for understanding the conditions (reminders family; size of the object, twin- good vs evil) under which people will see their possessions as human
	– Consumers can easily anthropomorphise brands primed with a human schema – Anthropomorphism results in a positive attitude – Consumers' perception of a humanised product mediates the influence of feature type on product evaluation. – The affective tag attached to the specific human schema moderates the evaluation of a product				
2. **Aggarwal & McGill (2012).** *Journal of consumer research.*	Anthropomorphism (yes vs. no) – Brand liking (low vs high)	– Healthfulness or unhealthy behaviours (eg. Taking stairs or waiting for a lift) – Likability		– Likeability for the brand – Brand role (partner - working together with the consumer to meet the need and servant -	– Explored how priming an anthropomorphised brand, in contrast to an objectified brand,

When brands seem human, do humans act like brands? Automatic behavioral priming effects of brand anthropomorphism				taking care of the need on behalf of the consumer)	affected people's everyday behaviour.
	– Anthropomorphised brands can influence decisions about fitness, risk-taking, and performance on an examination. – Participants are more likely to assimilate behaviour associated with anthropomorphised partner brands (eg. Kellogg's, a liked partner brand associated with healthfulness led to greater willingness to take the stairs than the elevator) – In servant brands, anthropomorphism leads to greater assimilation if participants dislike the brand than if they like it. – There was no effect of prime when the brand was not anthropomorphised				
3. **Ahn, Kim, & Aggarwal (2014).** *Psychological science* Helping fellow beings: Anthropomorphized social causes and the role of anticipatory guilt	– Anthropomorphism (yes vs no) (S1: light bulb, S2: garbage bins & tree planting campaign)	– Expected compliance (S1&2) – Donation (S3)	– Anticipatory guilt (S2)		– To find a way to increase compliance for prosocial behaviours
	– Compliance was higher in the anthropomorphism condition – Increased compliance in anthropomorphism condition. Anticipatory guilt was higher in the anthropomorphism condition which resulted in an increased level of compliance. Guilt mediated the effect of anthropomorphism on compliance. – Increased number and value of donations in the anthropomorphised condition.				

4. **Akdim, Belanche & Flavian (2021)** *International Journal of Contemporary Hospitality management.* Attitudes toward service robots: analyses of explicit and implicit attitudes based on anthropomorphism and construal level theory	– Robots (Low, medium high human likeness)	– Attitude towards the service (General, Explicit (S2) Implicit (S3)	–	–	– How different categories of service robots (low, medium high human likeness) differentially affect consumer attitudes
	– Participants tended to reject the high human likeness robots in frontline service settings. – Robots with lower human-likeness levels generate relatively more positive attitudes and are accepted to nearly the same extent as human employees in hospitality and tourism contexts. – Customers' explicit attitudes toward humanoid(medium) and mechanoid(low) robots are generally positive, however the opposite is true for realistic robots. – Customers have an implicit preference for human employees over robots with their implicit attitudes being strongly negative in robots with high human likeness.				
5. **Apaolaza, Hartmann, Paredes, Trujillo & D'Souza**	– Partner attachment orientation [(avoidant attachment: high vs. low) (anxious	– Pet attachment – Purchase intention	– Emotional pet attachment – Pet anthropomorphism	– Self-expansion (Envisioning pets as an expansion of the self)	– To examine the effect of consumer behaviour towards pet fashion specifically through

(2022) *Journal of Business Research.* The role of attachment, pet anthropomorphism, and self-expansion	attachment: high vs. low)] – Pet attachment				pet anthropomorphism
	– The avoidant attachment condition led to a higher emotional attachment to the pet and to a higher purchase intention for pet fashion clothing – Positive relationship between anthropomorphism and attachment and anthropomorphism and purchase intention – Younger and female individuals being more likely to anthropomorphise pets and purchase pet fashion.				
6. **Barney, Hancock, Jones, Kazandjian & Collier (2022)** *Journal of retailing.* Ideally human-ish: How anthropomorphized do you have to be in shopper-	– Anthropomorphism (Visual vs cognitive)	– Purchase intention	– Immersion to the app – Attitude toward the app	– 2nd type of anthropomorphism	– To determine whether using a combination of two types of anthropomorphism or them being used separately is a better approach to interacting with consumers
	– An anthropomorphised app can increase immersion, attitudes, and purchase intentions. – Only one type of anthropomorphism (visual or cognitive) is necessary to increase immersion and produce positive attitudes				

facing retail technology?					
7. **Belanche, Casalo, Schepers & Flavian (2021)** *Pyschology & Marketing.* Examining the effects of robots' physical appearance, warmth, and competence in frontline services: The Humanness-Value-Loyalty model	– Robot categories Mechanoid: a robot with a machine-like appearance and no overtly human-like features. Humanoid: a robot that possesses simplified or cartoon-like/ human-like features. Android: a robot that closly looks like a real human – Social categorisation cues (Humanness, Competence &Warmth)	– Loyalty intention	– Functional service value (“the expected utility derived from the quality and performance of the service”) – Social service value (“the expected utility derived from the service's ability to enhance social self-concept”) – Monetary service value (“the expected utility derived from the service due to the reduction of its perceived short term and longer term costs”) – Emotional service value(“the expected utility	– Need for social interaction (low vs high)	– To what extent robots' perceived physical human-likeness, perceived competence and perceived warmth affect customers' service value expectations (functional, social, monetary& emotional) and their loyalty intentions.

			derived from the feelings or affective states that a service generates")		
	− Human-likeness shows a significant positive relationship with all service value expectations. − Perceived human-likeness and competence influence loyalty intentions through functional, monetary and emotional values, while warmth influences loyalty intentions through emotional value. − The need for social interaction weakens the influence of perceived warmth on social and emotional value.				
8. **Butterfield, Hill & Lord (2012)** *Journal of Experimental Social Psychology*. Mangy mutt or furry friend? Anthropomorphism promotes animal welfare	− Anthropomorphism (yes vs no) they tested this with this dog is a good listener (yes) vs. good at listing to commands (no)	− Willingness to facilitate dog adoption	− Pro-animal attitude ("I support animal rights, I support animal welfare, it is morally wrong to use products made from the bodies of animals, and it is morally wrong to eat the meat of animals.")		− To examine whether anthropomorphism (the portrayal of the dog's listening ability) can be used to promote animal welfare.
	− Participants that read scenarios about dogs that were described with anthropomorphic language were more willing to help relative to the dogs described with non-anthropomorphic language − Participants in the anthropomorphism condition reported more willingness to adopt dogs from a shelter, and more support for animal rights, animal welfare, and dietary (vegetarian/vegan) attitudes				
9. **Borau, Otterbring, Laporte &**	− Gender of humans (female vs male)	− Attitude towards independent variable	− Perceived humanness of bots		− To examine the perceived humanness of female and male

Wamba (2021) *Psychology & Marketing*. The most human bot: Female gendering increases humanness perceptions of bots and acceptance of AI	– Gender of robots (female vs male) – Gender of chatbots (female vs male)	– Level of humanness (measured through the dual model of dehumanisation, the infrahumanisation model, Competent, Warm Moral model)			robots using implicit, explicit, subtle and blatant measures of perceived humanness, compared to both animals and machines
	– Women, female robots and female chatbots are perceived as more human than their male counterparts when compared with non-human entities (animals and machines) – Female chatbot are more preferred over the male chatbot as they are perceived as more human and more likely to consider the consumers unique need				
10. **Chandler & Schwarz (2010)** *Journal of Consumer Psychology*. Use does not wear ragged the fabric of friendship: Thinking of objects as alive makes people less	– Primes (S1,2) Object, control, anthropomorphism – Colour labels (S2) (warm vs cold), – Perceived product quality (S1&2)	– Replacement intention			– To test how anthropomorphic thought affects consumers' product replacement intentions
	– Participants reported lower replacement intentions when they were induced to think about their car in anthropomorphic terms. – Less intention to replace car after rating its personality characteristics (Anthropomorphism condition) than after rating its technical characteristics (Object condition) or providing no attribute rating (Control condition). – Replacement intention was dissociated from their perception of the car's quality. – Those who thought about their car anthropomorphically were unwilling to replace it when they were led to perceive its colour as "warm".				

willing to replace them	– Warm/cold connotations of the car's colour did not affect the replacement intentions for those in the non-anthropomorphic conditions.				
11. **Chartrand, T. L., Fitzsimons, G. M., & Fitzsimons, G. J. (2008).** *Social Cognition.* Automatic effects of anthropomorphized objects on behavior	– Animal prime (S1: dog or cat, S2: dog, cat & control (canaries))	– Loyalty behaviour		– The type of person who likes one animal more than the others (dog or cat lover)	– To examine the role animal anthropomorphism plays in shaping behaviour within our social world
	– Participants in the dog–prime condition responded more loyally than did those in the cat–prime condition. – Dog–primed participants responded more loyally than did cat–primed or canary–primed participants. Cat–primed participants responded significantly less loyally than canary–primed participants				
12. **Chen, Chen & Yang (2020)** *Journal of consumer psychology.* When sadness comes alive, will it be less painful? The effects of	– Anthropomorphism (yes vs no) – Style of thinking (anthropomorphic/ dependent person [attached to them, and could not be separated] vs. anthropomorphic/ independent person [person could be separated from them	– Sadness reduction (measure of sadness) – Perceived detachment to self	– Detachment		– To explore how anthropomorphising a specific emotion (sadness or happiness) affects people's experiences of the emotion and the implications for consumer behaviour.

anthropomorphic thinking on sadness regulation and consumption	easily] vs. nonanthropomorphic – Emotion (sadness, happiness)				
	– Engaging in anthropomorphic thinking reduces people's experiences of sadness – The effect of anthropomorphic thinking holds for both sadness and happiness. – The effect of anthropomorphism on sadness reduction is reduced when sadness is anthropomorphised as a dependent (vs. independent) person. The effect was mediated by perceived detachment. – People in the sadness condition perceived the person to more detached from them which reduced sadness intensity and resulted in participants exhibiting better self-control in later food choice section.				
13. **Chen & Lin (2021)** *European Journal of Marketing.* Revisiting the effects of anthropomorphism on brand relationship outcomes: the moderating role of psychological disposition	– Brand personification	– Brand relationship outcomes	– Perceived anthropomorphism	– Psychological disposition	– To see if consumers' psychological traits that may moderate the positive anthropomorphic effects on brand outcomes specific to relationship marketing
	– Consumers' need for belonging will increase the positive influences of perceived anthropomorphism, prompted by brand personification, on brand attachment and brand experience				

14. **Chen, Razzaq, Qing & Cao (2021)** *Journal of Retailing and Consumer Services.* Do you bear to reject them? The effect of anthropomorphism on empathy and consumer preference for unattractive produce	– Anthropomorphised (yes vs no) – Popularity (popular vs. unpopular)	– Purchase intention	- Empathy	– Popularity	– To study the role of anthropomorphism in the marketing of unattractive food produce
	– The positive effect of anthropomorphism on purchase intentions will be stronger when produce is unpopular and weakened when produce is popular				
15. **Chen, F., Sengupta, J., & Adaval, R. (2018).** *Journal of the*	– Motivation (lonely, helpless or neutral event) – Intervening task (Anthropomorphism vs non anthropomorphised)	– Vitality (their subjective sense of energy)	– Self-control		– To see if product anthropomorphism can increase consumers' psychological well-being by promoting their vitality

Association for Consumer Research. Does endowing a product with life make one feel more alive? The effect of product anthropomorphism on consumer vitality	– Participants reported greater loneliness after writing about a lonely event versus a neutral event or a helpless event. Those in the helpless condition experienced a greater loss of control than other conditions. – When people are lonely or helpless, engaging in product anthropomorphism improves their overall mood. Product anthropomorphism satisfied fundamental needs of competence and belonging. – Individuals with a deficient sense of sociality or competence (feeling lonely or helpless) experienced a greater replenishment of vitality after engaging in a product-anthropomorphising task than after a neutral task. This increase in vitality had a beneficial consequence in a subsequent task, as evident in greater resistance to tempting food (improved self-control).				
16. **Chen, Wan & Levy (2017)** *Journal of consumer psychology*. The effect of social exclusion on consumer preference for	– Social exclusion (Exclusion, inclusion) – Anthropomorphism (yes, no) – Attribution (self-attributed, other-attributed), – Brand role (partner, fling)	– Purchase intention	– Need for social – Affiliation	– Anthropomorphism. (yes vs no) – Affiliation opportunity	– To show that socially excluded consumers would be more motivated to establish a relationship with a brand when the brand exhibits human-like features.
	– Participants who were in the socially excluded condition (vs. included) indicated more favourable attitudes and were more likely to actually choose a candy when it was thought of as a person.				

anthropomorphized brands					
17. **Chen, Wei, Ran, Li & Meng (2021)** *Pyschology & Marketing.* Waiting for a download: The effect of congruency between anthropomorphic cues and shopping motivation on consumer patience	– Anthropomorphic messenger (exciting vs. sincere (S2) vs Control (S1 All 3)) – Shopping motivation (hedonic vs. utilitarian)	– Consumer patience	– Feelings of fluency (ease when processing information) – Perceived enjoyment		– To identify a strategy to boost consumer patience.
	– Participants with a hedonic motivation expressed higher patience when exposed to an exciting anthropomorphic messenger – Participants with utilitarian motivation exhibited greater patience when exposed to a sincere anthropomorphic messenger. – Anthropomorphic cues interact with consumption motivation to influence consumers' perceptions of fluency and enjoyment and therefore enhance their patience				
18. ***Cheng (2022)*** *Journal of consumer behaviour.* The effects of smartphone	– Anthropomorphism (high, low) – Arousal (high vs low) – Relationship norms (exchange vs communal)	– Perceived competence	– Psychological ownership		– The effects of anthropomorphism on consumers' psychological ownership of smartphone assistants and perceptions of their competence.

assistants' anthropomorphism on consumers' psychological ownership and perceived competence of smartphone assistants	– A highly anthropomorphic smartphone assistant was perceived to be more competent. – The anthropomorphism–relationship norms interaction moderated psychological ownership. Psychological ownership mediated the effect of anthropomorphism on perceived competence. – Anthropomorphism to perceived competence through psychological ownership was only significant under low arousal and compliance to communal relationship norms. – Participants who viewed the video of a smartphone assistant with higher anthropomorphism perceived it as having higher competence				

19. **Choi, Mattila & Bolton (2020)** *Journal of service research.* To err is human (-oid): how do consumers react to robot service	– Robot type (humanoid vs. nonhumanoid) – Failure type Process (flawed service) vs. outcome (unfulfilled core service) – Service recovery (apology vs. control) – Service recovery (Explanation vs. control) – Human intervention (apology vs. control)	– Satisfaction	– Warmth perceptions – Competence	– Failure type	– To investigate how social perceptions influence consumer reactions to service failures and recovery efforts by robots.

failure and recovery?	– Participants are more dissatisfied due to lack of warmth following a process failure caused by a humanoid – Humanoids can recover from a service failure by themselves via sincere apology, restoring perceptions of warmth while nonhumans cannot. – Humanoids effectively provide explanations as a recovery tactic but nonhumanoid do not. – Consumers will be more satisfied with service recovery when an apology is given by a human employee (vs. by a nonhumanoid only)				
20. **Crolic, Thomaz, Hadi & Stephen (2022)** *Journal of marketing.* Blame the bot: anthropomorphism and anger in customer–chatbot interactions	– Chatbot anthropomorphism – Scenario emotion (neutral, anger)	– Customer satisfaction – Firm evaluation – Purchase intention	– Preinteraction expectations	– Customer anger	– To examine how treating a chatbot as having higher or lower anthropomorphism impacted customer satisfaction with the interaction
	– When customers are in an angry emotional state, chatbot anthropomorphism has a negative effect on customer satisfaction, overall firm evaluation, and purchase intentions. This is not the case for nonangry customers. – Only angry customers are activated to respond negatively to anthropomorphic chatbots due to their need to overcome obstacles, blame others, and respond punitively to expectancy violations., – Participants in the sad condition were more satisfied when the chatbot was anthropomorphic versus not. – Participants reported lower evaluations of the company when the outcome was ambiguous versus when it was resolved. – Participants in the anger scenario condition reported lower purchase intentions when the chatbot was anthropomorphic versus not. – People in the anthropomorphic condition had higher expectations of chatbot efficacy than in the control condition. There was no difference in the low-expectation conditions.				

21. **Dalman,Agarwal & Min (2021)** *European Journal of Marketing*. Impact of brand anthropomorphism on ethical judgment: the roles of failure type and loneliness	– Anthropomorphism (yes vs. no)	– Intention to spread negative word of mouth (NWOM)	– Ethical judgement	– Failure type (competence-related (vs moral) – Loneliness	– To investigate whether anthropomorphised brands are judged less negatively for competence failures than for moral lapses and how these ethical judgments impact negative word-of-mouth (NWOM) intentions of less-lonely and more-lonely consumers
	– Consumers judge anthropomorphised (vs nonhumanised) brands more positively for competence-related (vs moral) failures which leads to consumers having less intention to spread NWOM – Less-lonely consumers find moral failures to be more negative when the brand uses an anthropomorphising strategy than not, and these lower judgments increase the consumer's tendency to spread NWOM. – Less-lonely consumers find competence failures to be less negative when the brand uses an anthropomorphising strategy than when it does not, and these higher judgments decrease the consumer's tendency to spread NWOM				
22. **De Visser, Monfort, McKendric, Smith, McKnight, Krueger, Parasuraman (2016)**	– Agent (computer, avatar, human) – Reliability (100%, 67%, 50%, 0%) – Familiarity (novel, familiar)	– Trust		– Familiarity	– To investigate the effects of different types of agent advisors varying in human appearance (computer, avatar and human), on consumer's

Journal of Experimental Psychology: Applied. Almost human: Anthropomorphism increases trust resilience in cognitive agents.					behaviour relating to trust, compliance, and performance in a decision-making task
	– Anthropomorphism is associated with greater trust resilience – Compared to their human-like counterparts, machine-like agents are trusted more initially, but also lapse more quickly, especially when there is greater uncertainty.				
23. **Ding & Xu (2022)** *Marketing letters.* Detrimental impact of contagious disease cues on consumer preference for anthropomorphic products	– Contagious disease cue (Covid-19) vs. accident cue (air) vs. control (dental technique) – Contagious disease cues (salient vs. control) – Anthropomorphic design (high vs. low)	– Product preference	– Social withdrawal	– Local severity of the contagious disease (low vs high)	– To examine when and why contagious disease cues can influence consumer preference for anthropomorphic products
	– Contagious disease cues will reduce consumer preference for anthropomorphic products, and this effect is mediated by social withdrawal. – This effect is alleviated for products in digital format or for consumers in regions with low local severity of the contagious disease.				

24. **Dootson, Greer, Lethern & Daunt (2022)** *Journal of Services Marketing.* Reducing deviant consumer behaviour with service robot guardians	– Perceived humanness of robot	– Opportunistic deviance intention	– Perceived empathy – Perceived risk of being caught.	– Negative attitudes towards robots	– To examine whether increasing the perceived humanness of robots reduces customer intentions to commit deviant consumer behaviour,
	– Replacing humans with robots does decrease customers perceptions that deter them for committing crimes and creates conditions that allows them to perpetrate more deviant consumer behaviour. This increase in deviant consumer behaviour is alleviated by increased humanness in service robots.				
25. **Epley, Akalis, Waytz, & Cacioppo (2008)** *Psychological science.*	– Anthropomorphism (yes vs. no) – Social connection S2 (connected vs disconnected) – Religious belief S2(yes vs no)	– Mental state attributions – Loneliness			– Proposed that the need for social relationships determines the variability in anthropomorphising nonhuman agents

When we need a human: Motivational determinants of anthropomorphism	– Condition S3 (disconnected, fear, control) – Measure S3 (supernatural agents, social-connection traits, faces identified)				
	– (Gadgets) Loneliness was significantly correlated with the anthropomorphic mental-state ratings, but not significantly correlated with the nonanthropomorphic ratings – (Gods) Participants who reported believing in God before the experiment reported stronger belief in the supernatural agents than those who reported not believing in God. Those in the disconnected condition also reported stronger belief in supernatural agents than those in the connected condition – S3: (Greyhounds) Social disconnection increases the tendency to create humanlike agents out of nonhuman agents in one's environment, and demonstrates that this result is not simply produced by any negative emotional state				
26. **Epley, N., Waytz, A., & Cacioppo, J. T. (2007).** *Psychological review.* On seeing human: a three-factor theory of anthropomorphism.	– S2: (dog: unpredictable vs predictable) – Desire for control: high vs low)	– Anthropomorphism rating – Loneliness scale			– To test whether those who are dispositionally lonely (sociality motivation) are more likely to anthropomorphise well–known pets (S1), and whether those who have a stable need for control (effectance motivation) are more likely to anthropomorphise

					unpredictable animals (S2)
	– Conceptual model – Theory of anthropomorphism proposes three psychological determinants that influence individuals' likelihood of anthropomorphising nonhuman agents. 1. Elicited agent knowledge is the knowledge of human experiences that individuals gain while developing self-concept and interacting with others. 2. Sociality motivation refers to the human desire for establishing relationships with others 3. Effectance motivation refers to the need for interacting with surroundings. Effectance motivates individuals to anthropomorphise nonhuman agents as this process reduces the perceived uncertainty of those agents in the environment. – Participants who felt more chronically disconnected provided higher rankings of the supportive anthropomorphic traits than participants who felt more socially connected, – S2: There was an interaction between the desire for control and the predictability of the stimulus. The tendency to seek understanding and control is facilitated by a stimulus that enables anthropomorphism.				
27. **Fan, Wu & Mattila (2016)** *Journal of Services Marketing.* Does anthropomorphism influence customers' switching intentions in the self-	– Technology anthropomorphism (Yes vs no) – Interdependent self-construal (high vs. low) How they view themselves – Technology self-efficacy (high vs. low) How they reflect their knowledge	– Consumer dissatisfaction	Blame attribution	– Consumer technology self-efficacy – Interdependent self-construal	– To explore the possible influence of machine anthropomorphism on consumer blame attributions and dissatisfaction after experiencing a service failure.
	– For consumers with low levels of both technology self-efficacy and interdependent self-construal, anthropomorphic (vs. non-anthropomorphic) machine triggers self-directed blame attribution, which reduces their dissatisfaction				

service technology failure context?					
28. **Folse, Burton & Netemeyer (2013)** *Journal of Advertising.* Defending brands: Effects of alignment of spokeschara cter personality traits and corporate transgression s on brand trust and attitudes	– Spokes character personality (more sincere or more competent) – Exposure to negative information type (company values (e.g. Labour abuse) or product performance oriented (food poisoning) – Time (visual stimuli exposure only and negative publicity and visual stimuli exposure – Visual stimuli type (spokes character, non-personified logo, or no visual present).	– Perceptions of brand attitude – Brand trust – Willingness to pay a price premium			– To examine the role of spokes characters in brand defending in terms of consumer perceptions of brand attitude, brand trust, and the willingness to pay a price premium
	– The brand associated with the sincere character handled worse for the labour abuse as opposed to the food poisoning publicity – For the competent character, the brand suffered greater damage from the food poisoning publicity. – There are greater image-protecting benefits associated with humanised characters compared to non-personified logos when faced with aligned negative publicity				

29. **Fournier, S. (1998)** *Journal of consumer research.* Consumers and their brands: Developing relationship theory in consumer research					– To clarify the concept of relationship strength implied in the notion of brand loyalty.
	– Consumers may consider the anthropomorphised brand as a surrogate for social contact because they indeed perceive the brand with a relationship mindset, which is affiliated to the one in interpersonal communication – Interviews (3): Case studies of Jean, Vicki, Karen				
30. **Fuchs, Kaiser, Schreier & Van Ossalaer (2021)** *Journal of retailing.* The value of making producers personal	– Mention of the owner in product packaging (personal information vs no)	– Willingness to pay – Product preference	– Quality – Authenticity – Anthropomorphism – Love and social presence	– Persuasion knowledge – Need to connect	– To examine how personising producers (mentioning the owner) affects consumers reactions to products.
	– A mediation model with quality, authenticity, anthropomorphism, love, and social presence demonstrated that the indirect effect of feelings of connectedness remains significant. – Feelings of connectedness to the producer mediate the personising effect of the tested product-related effects.				

31. **Garvey, Kim & Duhachek (2022)** *Journal of marketing.* Bad News? Send an AI. Good News? Send a Human	– Agent (human vs. AI) – Offer type (worse than expected vs. expected vs. better than expected) – Agent type (machine like AI vs . human like AI)	– Acceptance of the offer (likeliness scale)	– Inferred intention of the offering agent (selfish and benevolent intention perceptions)	Anthropomorphism	To demonstrate how consumer responses to negative and positive offers are influenced by either an AI or human marketing agent.
	- Consumers are more likely to accept worse-than-expected offers from an AI agent while they are more likely to accept better-than-expected offers from a human agent than an AI agent. - Intention is stronger when there are kind intentions with better-than-expected offer and stronger selfish intentions with worse-than-expected offer. - Anthropomorphised (vs. a machinelike) AI agent leads to a lower acceptance of worse-than-expected offers. -				
32. **Guido, G., & Peluso, A. M. (2015).** *Journal of Brand Management.* Brand anthropomorphism: Conceptualization, measurement, and	– Brand anthropomorphism (Human body lineaments, human facial physiognomy – Self-brand congruity (6 branded products IJPG le Male perfume, Coca-Cola, VW New Beetle car, sharp calculator, Canon laser printer, Bolton canned meat)	– Brand loyalty	– Brand personality		Develops a measurement scale for brand anthropomorphism.
	A positive indirect effect of Human Body Lineaments on brand loyalty, a positive indirect effect of Human Facial Physiognomy, and a positive indirect effect of Self-Brand Congruity.				

impact on brand personality and loyalty					
33. **Golossenko, Pillai & Aroean (2020)** *International Journal of Research in Marketing.* Seeing brands as humans: Development and validation of a brand anthropomorphism scale	– Anthropomorphism (yes vs no)	– Brand trust – Brand commitment			To develop and validate a new brand anthropomorphism scale (BASC).
	- Brand anthropomorphism is a valid predictor of outcomes such as brand trust and brand commitment.				
34. **Hadi & Valenzuela (2014)** *Journal of consumer psychology.* A meaningful embrace: Contingent	– Gesture (control, hug, approach, correction) – Anthropomorphic traits: (absent, present) – Loneliness(low, high)	– Product attitude – Purchase intention	– Emotional attachment	– Feelings of loneliness	– If affectionate gestures (hugging & stroking) can serve as routes to object attachment.
	– An anthropomorphic object doing an affectionate gesture (hug) improved purchase intentions, compared to the control. – When anthropomorphic traits were present, product attitude was improved when participants executed the affectionate gesture. Individuals in the low loneliness condition, gesturing had no impact regardless of the traits given				

effects of embodied cues of affection					
35. **Han, Baek, Yoon & Kim (2019)** *Journal of Retailing and Consumer Services.* Is that coffee mug smiling at me? How anthropomorphism impacts the effectiveness of desirability vs. feasibility appeals in sustainability advertising.	– Message appeals (desirability vs feasibility) – Anthropomorphism (yes vs no)	– Intention to recycle – Purchase intention	– Attitude toward advertising	–	– To examine whether consumers generally prefer the feasibility appeal over the desirability appeals in the case of environmental persuasion. – To test whether anthropomorphising an environmentally friendly product makes the desirability appeal more effective than the feasibility appeal.
	– Feasibility (vs. desirability) appeals led to more favourable attitude toward the ad and higher recycling intention. – When the ad featured an anthropomorphic product, the desirability (vs. feasibility) appeal led to more favourable attitude toward the ad and recycling intention but was the same as point 1 when not anthropomorphised				
36. **Hudson, Huang, Roth & Madden (2016)**	– Social media interaction amount (high vs low)	– Word of mouth			– To explore how individual and national differences influence the

International Journal of Research in Marketing. The influence of social media interactions on consumer–brand relationships: A three-country study of brand perceptions and marketing behaviors	– Anthropomorphic thinking priming (first person vs. third person) – Measure of uncertainty avoidance				relationship between social media and brand relationships.
	– Social media interaction presence (vs. absence) and the higher (vs. low) brand anthropomorphism, the better consumers' relationship quality with the brand. – Social media interaction is more likely to benefit a brand high in anthropomorphism.				
37. **Hunag, Wong, Wan (2020)** *Journal of Consumer Research.* The influence of product anthropomorp	– Product anthropomorphism (anthropomorphism vs. non-anthropomorphism) – Product version (Canon EOS 70D vs. Olympus E-M5 Mark)	– How consumers process information (MouseLab[mouse tracking], eye tracking), self-reported preference, real choice)	– Consumers' perception of each product alternative	– Motivation to seek maximized accuracy or ease	– To fill the gap by identifying the unique consequences of anthropomorphism in the context of comparing anthropomorphised product alternatives.

hism on comparative judgment	– Anthropomorphism increases the likelihood that consumers adopt an absolute judgment strategy over a dimension-by-dimension strategy in comparative judgment, and enhances consumers' preferences for an absolute-dominant product alternative over a dimension-dominant alternative.				
38. **Hu, Gong, Lu & Ding (2022)** *International Journal of Research in Marketing.* Speaking vs. listening? Balance conversation attributes of voice assistants for better voice marketing	– Speaking human-likeness – Listening human likeliness	– Voice recommendation acceptance – Voice shopping intention	– Social presence – Trust in voice assistants		– To examine how conversation attributes of voice assistants determine consumer trust and intention to engage in voice shopping.
	– Social presence can boost consumers' voice shopping intentions and voice recommendation acceptances via trust in voice assistants. – Incongruency between the two conversation attributes (the listening part needs to be worked on) can undermine consumers' trust in voice assistants, leading to reduced willingness to accept product recommendations from voice assistants and shop via voice assistants				
39. **Huaman-Ramirez, Lunardo, Vasquez-Parraga (2021)** *Pyschology & Marketing.* How brand	– Self-disclosure (brand sharing about how the products are made)	– Willingness to buy	– Brand intimacy – Brand trust	– Brand anthropomorphism	– If brand self-disclosure can enhance brand trust and willingness to purchase.
	– Significant positive effect of brand self-disclosure on brand trust – Positive effects of brand self-disclosure brand intimacy and on WTB – Engaging in self-disclosure, helps brands create intimacy and trust with consumers, leading these individuals to exhibit higher WTB				

self-disclosure helps brands create intimacy with customers: The role of information valence and anthropomorphism	– When the brand engages in the disclosure of positive (vs. negative) information, that consumers perceive more brand intimacy, even more, when proposed with some anthropomorphism.				
40. **Hur, Koo & Hofmann (2015)** *Journal of Consumer Research.* When temptations come alive: How anthropomorphism undermines self-control	– Brand anthropormphism (yes vs no) – Goal strength	– Conflict experience	– Internal attribution and external attribution (internal - the tendency to attribute the cause of & responsibility for consumption strictly to themselves ("it is my fault") (External attribution – the product is responsible)		– To examine how anthropomorphising a temptation impacts consumer self-control
	– Anthropomorphising a tempting product reduced dieters' experience of conflict regarding consumption of the product but did not influence desire strength.				

	– The effects of anthropomorphism on conflict experience and willingness to indulge in the product were unique to situations in which product consumption interfered with important long-term goals. – Consumers were less likely to make internal attributions for the cause, control, and responsibility for their consumption decision when the product was anthropomor4phised.				
41. **Karampourn ioti, Hennigs & Wiedmann (2018)** *Pyschology & Marketing.* When pain is pleasure: Identifying consumer psychopaths	– Anthropomorphic communication (high vs low vs none)	– Brand attitude		– Personality traits (Dark Triad of narcissism, Machiavellianism, and psychopathy & Empathy)	– To investigate whether anthropomorphism about cruel business tactics affects the formation of explicit and implicit brand attitudes
	– Consumer Psychopaths are positively stimulated by the sight of tortured, exploited, and mistreated animals. Anthropomorphised communication activities might not cause the desired effects of raised long-term awareness, brand avoidance, or even reduced consumption. – For empathetic Consumers, anthropomorphism seems to provide an efficient means to draw attention to cruel business practices and existing societal challenges				

42. **Keaveney, Herrmann, Befurt & Landwehr (2014)** *Psychology & Marketing.* The eyes have it: How a car's face	– Line extension (visual similarity (two new cars) vs. dissimilarity(one new one old car)) – no-design-vocabulary vs design-vocabulary condition (the drawing of the car was wither labelled or not)	– Attitude towards the product line		– Consumer product knowledge	– Explores how consumers react to when line extensions are visually similar and examine both short-term and long-term strategies for solving the problem

influences consumer categorization and evaluation of product line extensions	– Anthropomorphism (mouth/grille vs. eyes/headlight condition)				
	– Knowledgeable consumers make errors when attempting to identify visually similar products in a line. Product knowledge improves classification accuracy solely when line extensions are visually dissimilar. – Consumers who make categorisation mistakes have more negative attitudes toward the product line,with this transferring back to the parent brand – The eyes are more important than the mouth when it comes to anthropomorphising a car and differentiating cars in a product line				
43. **Ketron & Naletelich (2019)** *Journal of business research*. Victim or beggar? Anthropomorphic messengers and the savior effect in consumer sustainability behavior	– Anthropomorphism	– Recycled fibres, – Choice index	– Sympathy – Guilt	– Required payment for conservation	– To assess the role of anthropomorphism on consumer sustainability behaviour
	– Anthropomorphic cues (especially sad faces) increase sympathy. This sympathy leads to enhanced sustainability behaviour. – This effect is not effective when payment is required.				
44. **Ketron & Naletelich**	– Face (happy vs sad, S1&3) vs control (S2)	– Repatronage intentions (the	– Perceived sincerity and patience		– To test the effects of

(2020) *Journal of Services Marketing.* How anthropomorphic cues affect reactions to service delays	– Attribution of blame (provider vs other)	emotional attachment of the customer)			anthropomorphic cues (happy and sad faces) on consumer responses to service delays, depending on whether service providers are at fault for said delays.
	– When the provider is likely to blame (delay in package), happy faces are perceived as significantly less sincere than when the provider is not likely to blame. Providers might want to avoid using happy faces with delayed announcements. – A Sad face did not yield significantly different levels of perceived sincerity, regardless of attribution of blame. – A sad face leads to reduced emotional attachment intentions when the provider is not at fault, however, the opposite can be said when the provider is at fault				
45. **Kim & Duhachek (2020)** *Psychological science.* Artificial Intelligence and Persuasion: A Construal-Level Account	– Agent (human, artificial agents) – Agent (learning AA, Nonlearning AA) – Action description (High vs. low construal). A high-construal statement is "[Agent] is locking a door to secure the house.". While "[Agent] is locking a door by putting a key in the lock." is low – Typicality (typical vs. atypical) → Typical =	– Behavioural identification form – a scale developed to "which an individual perceives an action to be consistent with either low or high construal" (appropriateness)	– perceptions of superordinate goals	– The extent to which an artificial agent could independently learn from its environment	– To examined how persuasion attempts made by nonhuman agents might differ from persuasion attempts made by human agents.

	like previous studies or atypical as consciously self-aware or dehumanised human agents.				
	– The construal-level score was significantly lower when participants imagined that the action was conducted by an artificial compared to a human. – The human conditions reported higher appropriateness and for AA's lower construal descriptions were [erceived as more appropriate. – Perceptions of AAs as low-construal agents were reduced when AAs were capable of learning, because learning perceptions led to higher superior status beliefs – An AA could be perceived as having high-construal capabilities when it is described with features that are unique to humans. While the same effect can occur when a human agent is deprived of characteristics that distinguish itself from machines. Illustrating that construal effect are driven by the beliefs people hold about characteristics and the capabilities of the agent				
46. **Kim, S., & McGill, A. L. (2011)** *Journal of Consumer Research.* Gaming with Mr. Slot or gaming the slot machine? Power, anthropomorp	– Anthropomorphised (yes or no)	– Perceived risk – Willingness to play		– Perceived social power over others – Degree of trust in others Sense of personal need – their view of others as kind or altruistic.	– Explores situations in which the same level of anthropomorphism can magnify judgments differently depending on how people apply beliefs and expectations of social concepts like power.

hism, and risk perception	– Powerful consumers who saw the machine as human were more willing to play a risk-related game, whereas the powerless acted as if they had less control over the outcomes when they anthropomorphised the slot (higher risk perception), decreasing willingness to play the game. – Participants with low power perceived skin cancer as a riskier disease when it was highly anthropomorphised, whereas those with high power showed the opposite pattern. – High risk (vs. low risk) increased anthropomorphism for people with low power, while low risk increased anthropomorphism for those with high power. – Participants with low power were more likely to anthropomorphise the slot machine after losing than winning the game, whereas those with high power were more likely to anthropomorphise the slot after winning than losing the game.				
47. **Kim & Kramear (2015)** *Journal of Consumer Research*. Do materialists prefer the "brand-as-servant"? The interactive effect of anthropomorphized brand roles and materialism on consumer responses	– Anthropomorphised (yes vs. no) – Brand role: (servant vs. partner) – Materialism: (high vs low)	– Willingness to pay	– Activated desire to dominate the servant brand	– Brand status	– To explore consumers' relationships with different types of anthropomorphised brands and the roles the brands can take on (servant vs. partner).
	– Materialists respond more favourably to a servant brand than to a partner brand when the brand is anthropomorphised (vs. not), and they respond more favourably to an anthropomorphised servant brand than individuals low in materialism.				

48. **Kim & McGill (2018)** *Journal of Consumer Research.* Minions for the rich? Financial status changes how consumers see products with anthropomorphic features	– Financial status (rich vs poor) – Anthropomorphism (high vs low)	– Product evaluation	– Treatment expectation – Agency perception		– To explore how financial status (rich vs poor), influences consumers' expectations about how companies treat their consumer and how this perception changes depending on how anthropomorphic their products are.
	– Participants with higher financial status expect more favourable treatment from a humanised entity – Participants with higher perceived financial status provided greater agency to higher anthropomorphised products and liked them better than did participants with lower perceived financial status – Preference for anthropomorphised products depending on financial status is reversed when consumers expect commercial agents to treat the poor more favourably.				
49. **Kim & Swaminathan (2021)** *Journal of business research.* Time to say goodbye: The impact of anthropomorphism on	– Anthropomorphism (yes vs no) – Attitude toward the past (greater than mean vs. less than mean)	– Selling price	– Self-product connection	– Attitude toward the past	– To investigate the impact of anthropomorphism on used product dealings.
	– Anthropomorphism leads sellers to set higher prices for their used products as anthropomorphism enhances the sellers' emotional connections with the product. – Anthropomorphising also led to higher prices when the sellers has positive attitudes toward the past.				

selling prices of used products					
50. **Kim, Schmitt & Thalmann (2019)** *Marketing letters.* Eliza in the uncanny valley: Anthropomorphizing consumer robots increases their perceived warmth but decreases liking	– Anthropomorphism (human vs consumer robot) – Dimension (competence vs warmth) – Levels (high vs med vs low)	– Consumer attitude	– Uncanniness		– To examine how anthropomorphised consumer robots might affect consumer judgements
	– Anthropomorphism of a consumer robot increases psychological warmth but decreases attitudes, due to uncanniness therefore do not make the robots too similar.				
51. **Ko, Y. J., Asada, A., Jang, W., Kim, D., & Chang, Y.** *(2022*). *Sport Management*	– Figure (logo vs mascot). Background colour (cool vs warm)	– Perceived anthropomorphism	– Psychological closeness	– Loneliness	– To see the effects of anthropomorphising team mascots on the potential fans' psychological and behavioural responses.

Review. Do humanized team mascots attract new fans? Application and extension of the anthropomorphism theory	– The mascot conditions presented a greater level of perceived anthropomorphism compared to the logo condition. – Perceived anthropomorphism positively influenced the participants' psychological closeness to the team – The effect of perceived anthropomorphism on psychological closeness increased with an increase in the level of loneliness.

52. **Kucuk (2020)** *Journal of Consumer Marketing.* Reverse (brand) anthropomorphism: the case of brand hitlerization					– To examine consumer interpretations of consumer-generated anthropomorphism that focuses on demonising brands
	– Reverse brand anthropomorphism paper – Consumer participants indicate that corporations and corporate brands who gained more market power in social value creation systems than consumers are at the centre of reverse anthropomorphism. This corporate controlling mentality is associated with evil itself, an evil that tries to secretly control, and in fact possess, consumer's minds through corporate brands.				
53. **Kwak, Puzakova, Rocerto & Morigushi (2020)** *Journal of*	– Anthropomorphism (Yes vs no) – Cultural distance (distant versus close)	– Intention to visit – Cultural dissimilarity	– Perception of social risk (vacation choices or activities will be disapproved	– Familiarity with culture	– To provide insights into the impact of anthropomorphising in-group versus out-group entities in

advertising . When the unknown destination comes alive: the detrimental effects of destination anthropomorphism in tourism			of by friends, family, or associates)		regards to destination anthropomorphism
	– Anthropomorphism of a culturally distant destination decreases consumers' intentions to travel to this destination. – The negative effect of destination anthropomorphism emerges specifically for destinations that are culturally distant and dissipates for destinations that are culturally close – Anthropomorphism of a culturally distant destination increases perceptions of social risk associated with visiting the destination, thus decreasing intentions to visit				
54. **Kwak, Puzakova & Rocerto (2015)** *Journal of marketing.* Better not smile at the price: The differential role of brand anthropomorphization on perceived price fairness	– Price change: (Increase, decrease) – Anthropomorphism (yes vs no) – Gender (female, male)	– Price fairness – Net community score	– Cognition valences	– Agency-communion orientation (Agentic people tend to differentiate themselves and focus on self-interests.) (Communion-oriented people who are concerned about relationships with others)	– Exploring the effects of anthropomorphic positioning of a brand on consumers' judgments of perceived price fairness
	– Communion-oriented consumers view a price change (both increase and decrease) as fairer when a brand is anthropomorphised (vs. not). – Agency-oriented consumers evaluate price increases by a humanised (vs. nonhumanised) brand as less fair and this resulted in lower purchase intentions. – Male (vs. female) consumers should had more negative reactions to price increases.				

	– When consumers develop communal relationships with a brand, anthropomorphism enhances the perceived unfairness of price increases for both agency and communion-oriented consumers.				
55. **Landwehr, J. R., McGill, A. L., & Herrmann, A. (2011).** *Journal of marketing.* It's got the look: The effect of friendly and aggressive "facial" expressions on product liking and sales	– Headlight shape (arched vs slanted) – Grill shape (upturned vs. downturned)	Perceived aggressiveness and friendliness (S1)		– Anthropomorphic perceptions – Arousal	– Investigates how people decode emotional facial expressions from product shapes and how this affects liking.
	– When participants anthropomorphised cars, they perceived emotions from the humanlike design in ways similar to their perception of emotions from other people's faces. – Participants' liking of anthropomorphised cars was not affected by the friendliness or aggressiveness of the design. – Participants showed higher liking of the anthropomorphised cars with a mix of aggressive eyes and a friendly mouth – Perceived friendliness primarily triggers pleasure, and a perception of aggressiveness adds a higher level of arousal. Arousal increases the effect of pleasure on liking, which further supports the relationship between pleasure and arousal. – Consumers have positive emotional responses to anthropomorphised brands.				
56. **Laurence (2018)** *International Journal of Research in Marketing*	– Ad framing (Story telling vs. factual – Character type (Human vs. animal)	– Brand attitude	– Narrative transportation – Identification with the character	– Character type (human vs animal)	– To examine the effect character type (human versus animal) can have on storytelling ads on identification and brand attitude
	– Ads that tell a story exert a positive impact on narrative transportation compared to ads that do not tell a story. Telling story ads have higher narrative transportation and lead to lower character associations which have a less positive effect on brand attitude				

	– When the character is an animal, narrative transportation prevents consumers from identifying with the character of the ad, which leads to decreased brand attitude and makes the ad less effective.				
57. **Lee, Kim & Wang (2022)** *Marketing letters*. Anthropomorphizing makes material goods as happiness-inducing as experiences	– Purchase type (Experiential (concert), material (electronic gadget) – Anthropomorphism (yes or no)	– Happiness	– Perceived sociality	– Product type (a material, an experiential, an anthropomorphised-material, or an anthropomorphised-experiential purchase)	– To examine if anthropomorphising material purchases can increase feelings of consumption and happiness
	– When material goods are anthropomorphised, consumers gain enhanced feelings of consumption sociality and an increase in the feeling of happiness				
58. **Lee & Oh (2021)** *Journal of Business research.* Anthropomorphism and its implications for advertising hotel brands	– Anthropomorphism (yes vs no)	– Visit intention	– Perceived warmth	– Sociality and effectance determinants	– To explore the role of anthropomorphism for hotel brands
	– Anthropomorphism was more effective in increasing perceived warmth and visit intention when it encouraged sociality and effectance. – The effect of anthropomorphism was higher for sharing economy hotels than traditional hotels.				
59. **Letheren, Jetten, Roberts &**	– Level of humanness (mechanical, robotic, android)	– Liking			– To explore how different levels of robot humanness and

Donovan (2021) *Psychology & Marketing.* Robots should be seen and not heard… sometimes: Anthropomorphism and AI service robot interactions	– Level of social interaction opportunity(high, medium, low) Ability to converse				social interaction opportunities affect consumers' liking for service robots
	– Consumers prefer higher levels of humanness and moderate-to-high levels of social interaction opportunity, – Although some participants liked robots more with higher social -interaction				
60. **Letheren, Kuhn, Lings, Pope (2016)** *European Journal of Marketing*. Individual difference factors related to anthropomorphic tendency	– Personality – Thinking style – Age – Relationship status – Personal connection to animals	– Anthropomorphic tendency			– To examine the individual-level factors (personality, thinking style,age, relationship status and personal connection to animals) that correlate with anthropomorphic tendency
	– Anthropomorphic tendency is positively correlated with higher openness to experience, neuroticism, consciousnesses but not with agreeableness, extroversion – Those with lower need for cognition have higher levels of anthropomorphic tendency – Those with higher faith in intuition have higher levels of anthropomorphic tendency – Anthropomorphic tendency decreases with age				

	– Single people have higher levels of anthropomorphic tendency than married people – People with higher levels of personal connection to animals and higher levels of anthropomorphic tendency				
61. **Li, Peluso & Duan (2023)** *Journal of Retailing and Consumer Services.* Why do we prefer humans to artificial intelligence in telemarketing ? A mind perception explanation	– Teleseller type (Human vs AI)	– Call duration	– Empathy	– Anthropomorphism (yes or no)	– The role of empathy in the consumer-AI interaction
	– Consumers hang up on AI telesellers faster than their human counterparts – Consumers high in anthropomorphism are more inclined to perceive a mind in AI telesellers and tend to empathise with them as they would do with a human. – Consumers low in anthropomorphism feel significantly lower levels of empathy toward AI telesellers and consequently are less available to listen to them compared to human telesellers.				

62. **Lin, Doong & Eisingerich (2020)** *Journal of service research.* Avatar design of virtual	– Conflict (low [high star rating] vs. high [low star rating]) – Avatar: no image vs. realistic image – Avatar (“no avatar” vs. “low cuteness avatar” vs. “high cuteness avatar”)	– Customer willingness – Purchase recommendations	– Customer relationship satisfaction with – Customer trust in Virtual Salesperson (VS)	– Automated social presence (the extent to which technology makes customers feel the presence of a social entity)	– To investigate the extent to which customers’ relationship satisfaction and trust in a virtual salesperson helps explain customer willingness to follow

salespeople: Mitigation of recommendation conflicts					their advice in the context of recommendation conflict
	– Participants in the high-conflict condition indicate greater levels of conflict between the virtual salesperson recommendation – Participants perceive stronger levels of automated social presence in the low and high cuteness avatar than with no avatar.				
63. **Liu, Wei, Zhu & Chen (2022)** *Journal of Retailing and Consumer Services.* Warmth or competence: Brand anthropomorphism, social exclusion, and advertisement effectiveness	– Anthropomorphism (warmth vs. competence) – Social exclusion (ignore vs. reject) – Product type (high vs. low safety)	– Purchase intention	– Need for uniqueness	– Product type – Social exclusion	– To examine how social exclusion (ignoring vs rejecting) moderates the role of brand anthropomorphism in advertisement effectiveness
	– Warm (vs. competent) brand anthropomorphism increases advertising effectiveness for ignored (vs. rejected) consumers. – Ignored consumers prefer warm brand anthropomorphism only for high-safety products. – For low-safety products, all consumers prefer competent brand anthropomorphism, regardless of social exclusion.				
64. **Lim, Kumar, Verma & Chaturvedi (2022)** *Psychology & Marketing.* Alexa, what					
	– Systematic review of 722 publications on conversational commerce – Little focus on customers' perceived humanness of conversational agents and how to improve this humanness				

do we know about conversational commerce? Insights from a systematic literature review					
65. **Lteif & Valenzuela (2022)** *Psychology & Marketing.* The effect of anthropomorphized technology failure on the desire to connect with others	– Technology failure (failure vs no failure) – Anthropomorphism (yes vs. no)	– Desire to connect with others	– Feeling of rejection	– Anthropomorphism	– Deepen understanding of the unintended negative consequences of anthropomorphism by exploring how it could prevent consumers' social needs
	– When an anthropomorphised technology fails to function as expected, users experience feelings of rejection, and subsequently express a greater desire to connect with others.				
66. **Luo, Tong & Qu (2019)** *Marketing science.* Frontiers: Machines vs. humans: The	– Experiment condition (underdogs [humans with little experience], proficient workers, AI chatbots without discolure, disclosure	– Call length			– To explore various ways to mitigate the negative effect of chatbot disclosure on customer purchases.

impact of artificial intelligence chatbot disclosure on customer purchases	before conversation, disclosure after conversation, – Disclosure after decision				
	– The disclosure of chatbot machine identity reduces purchase rates. – Customers tend to purchase less and even terminate the calls early because they perceive the disclosed chatbot as less knowledgeable and empathetic.				
67. **Mariani, Perez-Vega & Wirtz (2021)** *Psychology & Marketing.* AI in marketing, consumer research and psychology: a systematic literature review and research agenda					
	- A systematic review of 412 theories in AI. - Anthropomorphism was an emerging theory in the AI research				
68. **Martin & Mason (2023)** *Journal of Experimental*	– Anthropomorphism (yes vs no)	– Humanisation – Attachment	– Perceived humanness – Gender stereotypes		– The effect of degendering products

Social Psychology. Hey Siri, I love you: People feel more attached to gendered technology	– Ascribing gender increases humanisation and attachment to anthropomorphised technology.				
69. **May & Monga (2014)** *Journal of consumer research.* When time has a will of its own, the powerless don't have the will to wait: Anthropomorphism of time can decrease patience	– Time anthropomorphism (Low vs high) – Power (low vs high)	– Gift certificate serving ($5 now, 1 = $10 later) refected patience – Shipping choice (patience)	– Time perception		– To see the effect of time anthropomorphism and power on patience.
	– For low-power individuals, the potency of wait time can be heightened by anthropomorphism. – Not significant for high-power participants				
70. **Mende, Scott, Van Doorn (2019)** *Journal of*	– Anthropomorphism (Humanised robot, human)	– Status consumption (spending of own money)	– Discomfort	– Roles of social belonging (social belongingness (asked questions like	– To examine the concept of the uncanny valley, testing how customers

Marketing Research. Service robots rising: How humanoid robots influence service experiences and elicit compensatory consumer responses		– Social affiliation (working on a task with a team or alone) – Compensatory food consumption (cheese eaten, calories selected, cake eaten)		"Describe in several sentences a time when you felt socially connected to another person or group of people" vs Control (questions about tv shows) – Healthy food type (healthy vs. regular) – Machinising the robot (reminding consumers that it is a machine)	respond to humanised robots. – "Uncanny valley concept suggests that people respond to humanoids with "an undercurrent of apprehension or unease""
	– Participants were more likely to choose the premium (vs. generic) product with a humanised robot (vs. human). – Participants were more likely to choose a group (vs. individual) task with an robot (vs. a human). – Participants consumed more food with a robot (vs. a human). – Participants served by the robot (vs. a human) selected more food. – Participants in the control condition intended to eat more cake when served by the robot (vs. a human). – With regular food, participants ate more with a robot (vs. a human). When the food is positioned as healthy, the effect is reduced – Participants ate more food with the named robot than the mechanized robot.				
71. **Merchant, LaTour, Ford & LaTour (2017)**	– Familiarity with a non-profit icon (anthropomorphised or not)	– Donation intention		– Need to belong – Avoidance attachment style – Fearful-dismissive attachment style	To examine how consumers react to changing icons specifically focusing on not-for-profit companies

Psychology & Marketing. Should Cookie Monster adopt a healthy lifestyle or continue to indulge? Insights into brand icons	– The more familiar the icon, the greater the donation intent. – People who have a low need to belong (high attachment avoidant individuals) were most impacted by changes in the icon – Effects were more evident among consumers with a fearful attachment style

72. **Neave, N., Jackson, R., Saxton, T., & Hönekopp, J. (2015).** *Personality and Individual Differences.* The influence of anthropomorphic tendencies on human hoarding behaviours	- Gender - Age - Anthropomorphism Questionnaire (AQ) - Individual Differences in Anthropomorphism Questionnaire (IDAQ)	- Anthropomorphic tendencies - Tendency to acquire - Social anxiety - Hoarding behaviours		- Anthropomorphism levels - Emotional attachments towards a novel item	- To develop a new anthropomorphism questionnaire. - To determine the predictive capabilities of the new questionnaire and the IDAQ on hoarding beliefs and behaviours
	- Age is negatively associated with both anthropomorphism and with hoarding, younger participants scoring higher on anthropomorphism and on predicted hoarding behaviours. - Social anxiety was significantly positively correlated with both anthropomorphism questionnaires, and with the both measures of hoarding - Women showed stronger childhood anthropomorphising behaviours than men, and younger participants showed stronger anthropomorphising and hoarding cognitions and behaviours				

73. **Nenkov, G. Y., & Scott, M. L. (2014)** *Journal of Consumer Research.* "So cute I could eat it up": Priming effects of cute products on indulgent consumption	– Anthropomorphised vs neutral (S1: ice cream spoon, S2: stapler) – Gift card condition (whimsical cuteness, kindchenschema cuteness & neutral), – Whimsical cuteness S4 (yes vs no), – Kindchenschema cuteness S4(yes vs. no) – Covariates: age, gender	– Intention use the product for indulgent purposes (S2)	– Self-rewards	– Kindchenschema cuteness	– The extent consumers engage in more indulgent consumption when they are exposed to whimsically cute products and how this affect indulgence.
	– All consumers engaged more with whimsically cute products – Cute products prime mental representations of fun – Whimsically cute products on indulgent behaviour is influenced by the prime of mental representations of fun, whereas kindchenschema cute products prime vulnerability.				
74. **Pozharliev, De Angelis, Rossi, Romani,Verbeke & Cherubino (2021)** *Pyschology & Marketing.*	– Type of service agent (Human vs robot)	– Satisfaction – Positive word of mouth	– Pleasantness – Empathy	– Anxious attachment style (AAS)	– Explores how customers' attachment styles, influence three types of customer responses: affective responses (experienced pleasantness), attitudinal responses (perceived empathy,

Attachment styles moderate customer responses to frontline service robots: Evidence from affective, attitudinal, and behavioral measures					satisfaction), and behavioural responses (word-of-mouth)
	– Customers scoring low on the AAS scale report an increase in customer satisfaction in relation to a human (vs. robot) – Those that interacted with the robot had decrease customer satisfaction and this was mediated by experienced pleasantness. This decrease is higher for people scoring low on AAS – Customers low on AAS are more satisfied and likely to spread positive WOM after interacting with a human service agent; this effect is mediated by the customer's perceived empathy toward the service agent				
75. **Puzakova, M., & Aggarwal, P. (2018)** *Journal of Consumer Research.* Brands as rivals: Consumer pursuit of distinctiveness and the role	– Distinctiveness motivation S1,2,3,4 (Uniqueness vs, homogeneity visual arrays), – Anthropomorphism (yes vs. no) S1,2,3 4 – Brand positioning (distinctive vs. non distinctive) – Product usage context S3 (public vs. private)	– Brand attitude (S1 & 2) – Desire for unique products (S2)	– Agency in self-expression	– Need for agency	– To demonstrate that anthropomorphising a brand becomes a detrimental marketing strategy when consumers' distinctiveness motives are important.

of brand anthropomorphism	– Brand role S4 (supporter vs. agent vs. controller)				
	– There were no significant main effects of either brand anthropomorphism or distinctiveness motivation. – Significant interaction effect between distinctiveness motivation and brand anthropomorphism. – When distinctiveness motivation was high, consumers developed less favourable brand attitudes when the brand was anthropomorphised than when it was non- anthropomorphised. – The negative impact of brand anthropomorphism emerges only for brands that are likely to signal consumers' distinctiveness and when consumers' distinctiveness concerns are high. – Consumers evaluate an anthropomorphised (vs. nonanthropomorphised) brand positioned to be distinctive less positively; however, this only happens during public usage. – For a brand positioned as an agent, consumers with salient distinctiveness motives develop less favourable attitudes toward an anthropomorphised distinctive brand. – Brand-as-supporter increases the extent to which consumers view the brand as enhancing their agency which leads to more favourable evaluations of an anthropomorphised brand. – In the brand-as-controller condition, they found a lower attitude toward an anthropomorphised brand.				
76. **Puzakova & Kwak (2021)** *Journal of Advertising.* Two's Company, Three'sa Crowd: The Interplay between Collective versus Solo	– Solo vs collective brand anthropomorphism (the presence of multiple anthropomorphised entities versus one entity eg. Three sandwiches in one logo instead of one) – Gender (female vs male)	– Brand attitude – Purchase intention	– Expected relationship closeness	–	– To investigate how a collective or solo anthropomorphised brand appeals to different genders

Anthropomorphic Brand Appeals and Gender	– Collective brand anthropomorphism is less effective compared to its solo counterpart. – Women exhibit lower intentions to try food from a collective anthropomorphised brand, – Men are likely to exhibit greater preferences for a collective anthropomorphised brand than women. – When women expect relationship closeness with a brand, they are more likely to develop lower brand preferences when a brand is advertised as collective anthropomorphised.				
77. **Puzakova, Kwak, Rocereto (2013)** *Journal of marketing.* When humanizing brands goes wrong: The detrimental effect of brand anthropomorphization amid product wrongdoings	– Anthropomorphism (yes vs. no) – Implicit theory (entity vs incremental – Firm responses (denial, apology, compensation) – pre–, post–firm response measures	– Attitude towards the brand	– Brand responsibility (Attributions of the cause of a negative brand performance – Stability of a negative brand performance – Typicality of a negative brand performance	– Implicit theory	– To see if product wrongdoings are more harmful to the image of anthropomorphised brands
	- Brand anthropomorphisation combined with negative publicity negatively affect consumers' brand attitudes and trust. - This effect held with different forms of anthropomorphism (human features, first person messaging and humanlike behaviours) - Implicit theory of personality moderates the effect of brand anthropomorphisation. For entity theorists, negative publicity caused by a product wrongdoing leads to less favourable attitudes when a brand is anthropomorphised than when it is not. For incremental theorists, negative brand information does not lead to more detrimental evaluations of an anthropomorphised brand than a nonanthropomorphised brand. - Entity theorists retain less favourable attitudes toward the humanised brand and have lower purchase intentions when a brand responds with a denial. – Entity theorists remain insensitive to an apology for wrongdoings when the brand is anthropomorphised. These negative effects of brand anthropomorphisation for entity theorists dissipate only when a firm responds with compensation				

78. **Seo (2022).** *International Journal of Hospitality Management.*	– Robot gender (female vs. male) Anthropomorphism (low/ high) –	– Satisfaction	– Pleasure	– Anthropomorphism (low/ high)	– To examine the role that gendering a service robot and the level of anthropomorphism has on pleasure and customer satisfaction.
	– Female service robots generated more pleasure and higher satisfaction compared male service robots, and this effect is higher when anthropomorphism levels are higher				
79. **Tassiello, Tillotson & Rome (2021)** *Psychology & Marketing.* "Alexa, order me a pizza!": The mediating role of psychological power in the consumer–voice assistant interaction	– Involvement products (high vs low) – Psychological Power (low vs high)	– Willingness to purchase	– Perceived power		– To understand the role of virtual assistants and their ability to shape the consumer decision making process
	– Consumers are more likely to purchase low involvement than high-involvement products through virtual assistant technology, particularly when experiencing high-power states				
80. **Tam, Lee & Chao (2013)** *Journal of Experimental*	– Anthropomorphism (yes vs no)	– Product use intention – Environmental indicator support	– Connectedness to nature		– To explore whether anthropomorphism of nature has any impact on the way

Social Psychology. Saving Mr. Nature: Anthropomorphism enhances connectedness to and protectiveness toward nature		– Environmental movement support – Conservation behaviour (public [active participation /donations] and private[purchasing and using green product])			people relate to and behave toward nature
	– Anthropomorphism of nature was positively associated with conservation behaviour. – Anthropomorphism condition participants reported stronger connectedness to nature than the control condition				
81. **Timpano, K. R., & Shaw, A. M. (2013)** *Personality and Individual Differences.* Conferring humanness: The role of anthropomorphism in hoarding	– Anthropomorphism (yes vs no) – Saving Cognitions Inventory (examines attitudes and beliefs related to hoarding symptomatology)	– Anthropomorphism – Hoarding beliefs (SIR - Saving Inventory-Revised)		– Levels of anthropomorphism	– To examine the association between anthropomorphism and hoarding.
	– Anthropomorphic tendencies were significantly associated with hoarding symptoms – Anthropomorphism was linked with greater difficulty discarding and acquisition symptoms, but not clutter.				
82. **Touré-Tillery & McGill (2015)** *Journal of*	– Messenger type (anthropomorphised without arms vs.	– Persuasion	– Perception of messenger good will	– Interpersonal trust – Attentiveness	– Differences in people's levels of trust in human agents and how these differences may

marketing. Who or what to believe: Trust and the differential persuasiveness of human and anthropomorphized messengers	anthropomorphised with arms vs. human) – Interpersonal trust – attentiveness				influence the persuasiveness of anthropomorphised messengers compared with human messengers.
	– Low trusters are more persuaded by anthropomorphised (vs. human) messengers (the belief that it has more goodwill), whereas high trusters, respond similarly to both types of agents. – When conditions foster a very high level of attentiveness, high trusters would notice the nature of the messenger and would be more persuaded by the human than the anthropomorphised messenger				

83. **Van Esch, Arli, Gheshlaghi, Andonopoulos, Von de Heidt & Northey (2019)** *Journal of Retailing and Consumer Services.* Anthropomorphism and augmented	– Anthropomorphism (yes vs. no)	– Attitude towards the brand – Confidence in augmented reality (AR)	– Confidence – Convenience of the transaction – Discomfort – Innovativeness – Product usage barrier –		– To explore the influence of anthropomorphism on consumers' use of AR and on their attitude towards the brand
	– Anthropomorphism will significantly increase consumers' confidence in AR – Anthropomorphism will significantly influence consumers' perception that AR facilitates the convenience of transactions, increase consumers' perception that AR is innovative, reduce barriers to consumers' use of AR and reduce consumers' negative perceptions of the side effect of AR. – Consumers' confidence in AR will significantly influence their attitudes toward the brand – Customers' level of discomfort with AR will significantly influence their attitude toward the brand.				

reality in the retail environment					
84. **Van Prooijen & Bartels (2019)** *Journal of consumer behaviour*. Anthropomorphizing brands: The role of attributed brand traits in interactive CSR communication and consumer online endorsements	– Perceived interactivity "the extent to which users perceive their experience as a simulation of interpersonal interaction and sense they are in the presence of a social other"	– Perceived interactivity – eWOM intention	– Morality (honesty & trustworthiness) – Competence (intelligence & skilfulness) – Sociability (likability & friendliness)		– To examine the role of attributed brand traits (morality, competence and sociability) in corporate social responsibility (CSR) and electronic word of mouth intentions
	– Higher levels of perceived interactivity were linked to the attribution of moral, sociable, and competent traits to brands. – Only morality was associated with consumers' willingness to endorse the brand and its CSR message on social media				
85. **Van den Hende & Mugge (2014)** *Psychology & Marketing.*	– Human gender schema (female vs male) – Participant gender (men vs women)	– Product evaluation	– Perceived anthropomor - phism	– Product-schema congruity ("When a product is endowed with a feature that is congruent with	– To explore when and why priming a human schema through messaging will encourage consumers to perceive the product as human, thereby positively

Investigating gender-schema congruity effects on consumers' evaluation of anthropomorphized products	– Product feature (black/blue vs. yellow/purple) – Product category replicate (digital camera, car)			the human" e.g. two same-sized bottles with a primed human twin schema) – Gender-schema congruity effect. (When the gender of the product matches with the gender of the consumer it makes it easier for the human to associate with the product)	affecting product evaluations.
	– When primed with a human gender schema that is congruent (vs. incongruent) with consumers' own gender, consumers anthropomorphised the product and showed more preferential evaluations. – When both gender-schema congruity and product schema congruity are present, the perceived anthropomorphism and product evaluation are not enhanced.				
86. **Van Tilburg, Lieven, Herrmann & Townsend (2015)** *Psychology & Marketing.*	– Product group (feminitiy FPG vs masculinity MPG) – Proportions (slim vs bulky) (round vs angular) (curvy vs straight)	– Purchase intention – FPG and MPG	– Affective attitude – visual aesthetics – product functionality		– To investigate the influence of product gender created by aesthetics on consumer behaviour.

Beyond "pink it and shrink it" perceived product gender, aesthetics, and product evaluation	– The slim, round, and curvy manipulations were found to increase FPG and decrease MPG, thus making the product feminine, and the opposite manipulations decreased FPG and increased MPG. – Higher levels of product gender resulted in stronger purchase intent				
87. **Velasco, Yang & Janakiraman (2021)** *Journal of business Research.* A meta-analytic investigation of consumer response to anthropomorphic appeals: The roles of product type and uncertainty avoidance	– Product type (experience vs search) – Unvertainty Avoidance (High vs Low) – Methodological factors (Multiple cues)	– Effectivness of anthropomorphism		- Product type(Experience vs. search products) - Uncertainty avoidance	– A metaanlysis exploring anthropomorphic appeals in generating positive product evaluations from consumers.
	– Metanalysis – Consumers tend to react to anthropomorphic stimuli more positively compared to non-anthropomorphic stimuli. – The effect of anthropomorphic appeals on product evaluations is more pronounced when the product is an experience (vs. search) product, and when the consumers have high (vs. low) uncertainty avoidance. – Anthropomorphic appeals are more effective when a single cue is used than when multiple cues are used to humanise the product or brand.				
88. **Wan, Chen & Lin (2017)**	– Anthropomorphism (yes vs no)	– Consumer choice	– Goodness inference score	– Discounting belief	– To see if anthropomorphism can

Journal of Consumer Research				(discounting belief vs. baseline)	influence consumers thoughts on a product's general appearance
	– Participants in the anthropomorphism condition allocated more monetary and time resources to search for information about the appearance attributes of the products, whether anthropomorphism was framed or primed. – The anthropomorphised condition, preferred more products with better appearance, were more likely to choose products with more attractive packaging and products with more appealing appearance design, and actually purchased more products with superior appearance.				
89. **Wang, Kim & Zhou (2022)** *International Journal of research in marketing.* Money in a "Safe" place: Money anthropomorphism increases saving behavior	– Money anthropomorphism (Human vs Object)	– Saving intention and behaviour	– Perceived experience of money – Perceived vulnerability of money – Warmth perception – Perceived Autonomy	– Perceived safety of an account to keep money	– To examine the effects of money anthropomorphism on consumer saving behaviour
	– People are more likely to save when they think of money in anthropomorphic (vs. object) terms because anthropomorphised money appears to be capable of experiencing pain and joy and is therefore perceived to be more vulnerable and in need of protection. – Money anthropomorphism increased saving intention without explicitly evoking a threat to money.				
90. **Waytz, A., Heafner, J., & Epley, N. (2014).** *Journal of*	– Condition (Normal, Agentic, anthropomorphic)	– Overall trust – Liking – Blame for vehicle – Distraction – Anthropomorphism	– Perceived anthropomorphism		– To test if people will be willing to trust technology to replace a human

Experimental Social Psychology. The mind in the machine: Anthropomorphism increases trust in an autonomous vehicle	– Participants in the anthropomorphic and agentic conditions liked the vehicle more than did participants in the Normal condition, but the autonomous vehicle conditions did not differ significantly – The anthropomorphic condition trusted their vehicle the most followed by the agentic and then the normal condition. – For behavioural trust, participants in the anthropomorphic condition trusted their vehicle more tha participants in the agentic and normal condition. The agentic and normal conditions had no significant difference. – Agentic and anthropomorphic conditions blamed their car more for the accident than the normal condition, – For self-reported trust, the anthropomorphic and agentic condition had no significant difference but they did have higher trust than the normal condition. – Anthropomorphism mediated the relationship between vehicle condition and overall trust in the vehicle				
91. **Waytz, Morewedge, Epley, Monteleone, Gao & Cacioppo (2010).** *Journal of personality and social psychology.* Making sense by making sentient: effectance motivation increases	– Replicate (A or B), – Description (predictable vs unpredictable) – Rating (anthropomorphic vs nonanthropomorphic)	Anthropomorphism			– To investigate whether increasing factors related to effectance motivation increases anthropomorphism – To investigate whether anthropomorphism satisfies effectance motivation by increasing a sense of understanding and predictability
	– Participants were more likely to perceive their computers to have minds, beliefs, and desires when their computers frequently malfunctioned. – Participants indicated that they would be less able to control the gadgets when they were described as unpredictable than when they were described as predictable. Participants anthropomorphised the unpredictable gadgets more than the predictable gadgets – The neuroimaging results reveal that evaluating the mental capacity of unpredictable gadgets is associated with relative increases in fMRI activity in an area centred in the vMPFC and ACC.				

anthropomorphism.	– Participants who were motivated to predict a non-human agent's behaviour anthropomorphised it more than participants who were not explicitly motivated to do so – Participants perceived greater efficacy with the agents they were instructed to describe anthropomorphically than with the agents they were instructed to describe objectively				
92. **Xie, Chen & Guo (2020)** *Journal of Retailing and Consumer Services.* Online anthropomorphism and consumers' privacy concern: Moderating roles of need for interaction and social exclusion	– Anthropomorphism – Social experience (excluded or accepted)	– Willingness to register – Purchase intention	– Privacy concern	– Need for interaction	– To examine the effect of anthropomorphised marketing and social experience (being excluded or included) on consumers' online privacy concern.
	– Consumers with a low need for interaction with human service assistants were more concerned about their privacy with anthropomorphic websites and less likely to register online. – Socially excluded people showed higher privacy concern on anthropomorphic websites than their socially included participants. – Social exclusion experience led to decreased purchase intention on different purchasing scenarios that incorporated anthropomorphic elements.				

93. **Xie, Yu, Zhang & Chen (2022)** *Pyschology & Marketing.* The searching	– Recommender type (Human/AI) – Product type (search/ experience)	– Purchase behaviour		– Product type (Search Experience)	– Explores the effect of AI (vs. human) on consumers' preferences for search versus experience products in the context of e-commerce

artificial intelligence: Consumers show less aversion to algorithm-recommended search product	– Consumers favour human recommenders in the context of experience products, while they display similar intention to buy search products under both AI and humans – Same was shown in study 2 with the brain scan				
94. **Yam, Goh, Fehr, Lee, Soh & Gray (2022)** *Journal of Experimental Social Psychology.* When your boss is a robot: Workers are more spiteful to robot supervisors that seem more human	– Robot supervisor anthropomorphism (yes vs. no)	– Supervisor-directed retaliation	– Perception of agency – Perception of abuse		– To examine how human employees interact with and react to robots at work, specifically in the context of the supervisor-follower relationship.
	– Participants who received the negative feedback from an anthropomorphised robot supervisor perceived more agency and more abuse which led to more retaliation				
95. **Yang, Aggarwal,**					

McGill (2019) *Journal of Consumer Psychology.* The 3 C's of anthropomorphism: Connection, comprehension, and competition	The three C's (Motivation) – Connection (Sociality) → fulfils belonginess needs – Comprehension (Effectance) → allows consumers understand unfamiliar products/ environments – Competition (Self-protection) → anthropomorphism can be viewed as potential threats to consumer's goals				
96. **Yuan, Zhuang & Wang (2022)** *Journal of Retailing and Consumer Services.* Social anxiety as a moderator in consumer willingness to accept AI assistants based on utilitarian and	- Hedonic vs utilitarian	- Willingness to accept AI assistance		- User's social anxiety	- How AI influences consumer utilitarian and hedonic value - Explore how consumer willingness to accept AI assistants is affected by their value perception
	- AI assistant have positive impacts on the utilitarian/hedonic value perceived by users, which further influence user willingness to accept AI assistants - A higher level of social anxiety strengthens the positive influences of AI assistant responsiveness and compatibility on utilitarian and hedonic value.				

hedonic values					
97. **Zhang, Li, Ye,Qin, Zhong (2020)** *Journal of consumer behaviours.* The effect of brand anthropomorphism, brand distinctiveness, and warmth on brand attitude: A mediated moderation model	– Anthropomorphism (Yes or no)	– Brand attitude	– Warmth – Competence	– Brand position (distinctiveness vs. popularity)	To explore the effects of brand anthropomorphism, brand distinctiveness, and warmth on brand attitude.
	– Anthropomorphism improved consumers' brand attitude only toward brands positioned to be popular. – No attitude changes with anthropomorphised distinctive brands – Adding a lovable figure to a popular brand increased consumers' affection.. – Brand position moderated the relationship between anthropomorphism and brand attitude. Warmth mediated the interaction effect of anthropomorphism and brand position on brand attitude.				
98. **Zhou, Kim & Wang (2019)** *Journal of Consumer Research.* Money helps when money feels: Money anthropomorp	– Money anthropomorphism (yes vs. no)	– Amount of money donated to charity	– Warmth and competence perceptions		– To examine whether merging money with humanlike characteristics influences charitable giving.
	– Imbuing money with humanlike characteristics can enhance charitable giving – Money anthropomorphism enhanced both warmth and competence perceptions of money. Only warmth perception increased donation intention. – Money anthropomorphism did not enhance other types of charitable giving, such as signature provision.				

hism increases charitable giving	– Money anthropomorphism effect was unique to money and that anthropomorphising other financial instruments, such as a credit card, did not induce the same effect				
99. **Zhu, Wong, Huang (2019)** *Journal of business research.* Does relationship matter? How social distance influences perceptions of responsibility on anthropomorphized environmental objects and conservation intentions	– Anthropomorphised social role (stranger, mother, child)	– Conservation intention	– Perceived weakness – Perceived vulnerability	– Power	– To explore how perceived social relationships impacts the effect of anthropomorphise environments on conservation intention.
	– Anthropomorphism elicits a stronger conservation intention. The child condition having the strongest intention, followed by the mother condition. – Participants perceived a higher level of weakness in the child condition. Perceived responsibility had a significant impact on monetary donation intention. – Individuals with higher power states tend to feel a greater sense of responsibility toward helping the anthropomorphised objects with the closer relationship to them.				

Appendix B

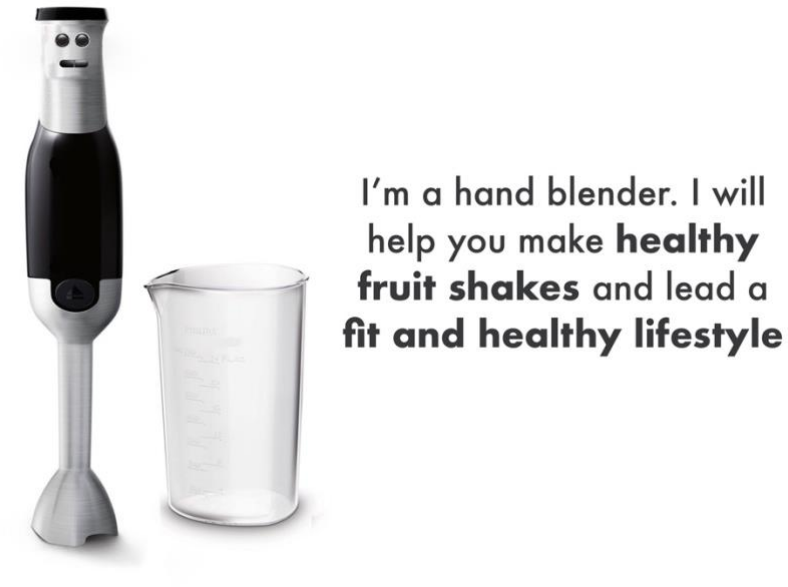
Product Anthropomorphism Manipulation Through Product Advertisement

Product category #1: Hand-held blender (Study 1) adopted and modified stimuli from Chen et al., (2021).

Utilitarian condition: Imagine the following scenario.

You are looking for a blender to make fun cocktails and encounter the following advertisement.

Anthropomorphism & Utilitarian Condition



Non-anthropomorphism & Utilitarian Condition

Hedonic conditions: Imagine the following scenario.

You are looking for a blender to make healthy smoothies and encounter the following advertisement.

Anthropomorphism & Hedonic Condition

Non-anthropomorphism & Hedonic Condition

Appendix C

Product Anthropomorphism Manipulation Through Product Advertisement

Product category #2: Refrigerator (study 2)

Imagine that you are looking to buy a refrigerator. While browsing online, you encounter the following advertisement.

Anthropomorphised stimulus


It is more than just a refrigerator.
It is bolder and better.
It is designed to preserve optimum freshness.
It is an energy efficient and eco-friendly refrigerator.