How Culture Shapes Consumer Responses to Anthropomorphic Products

Anecdotal evidence suggests that Eastern consumers respond more favorably to anthropomorphic products than their Western counterparts. In the present work, we examine the validity of this common intuition and uncover the specific cultural dimension underlying this difference in consumer response. Specifically, across a cross-national field study and three controlled experiments, we demonstrate that collectivistic consumers favor anthropomorphic products more than non-anthropomorphic products, whereas non-collectivistic consumers do not display this relative preference. This interactive effect holds across various product categories, regardless of whether collectivistic thinking is measured, manipulated, or operationalized based on nationality or ethnicity. We offer managerial and theoretical implications that stem from our findings.

Keywords: culture, collectivism, self-construal, anthropomorphism, product evaluation

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At a local convenient store in Singapore, packaging on a red bean bun reads, "I am the happiest bread on earth!" On the buzzing streets of Tokyo, a construction cone boasts twinkling eyes and a large grin. And at a popular Korean cosmetics shop, a makeup tube appears to have blushed cheeks.

These examples illustrate a marketing phenomenon that is not entirely uncommon: brand managers and product designers often encourage consumers to view products in an anthropomorphic (i.e., human-like) manner. Anecdotally and interestingly, such practice appears to be especially prevalent in some East Asian countries (see Appendix A for marketplace examples): many packaged foods in South Korea are given visual anthropomorphic traits (Branding in Asia 2017), numerous classic consumer electronic products in Japan have anthropomorphic brand names (e.g., "Game Boy" and "Walkman"; Shea 2014), and the market for human-like service robots is flourishing in several East Asian nations (Belk 2016). Some scholars have also observed that anthropomorphic characters and narrators are common communication tools in some Asian countries, yet uncommon in Western countries (Wood 2019).

To assess whether the prevalence of anthropomorphic product traits is in fact greater in Eastern (vs. Western) cultures[1], we analyzed an international dataset from Kantar Worldpanel that listed the top-selling brands in various consumer good product categories across nine nations, including both Eastern (China, Taiwan, Thailand, Vietnam) and Western (France, Germany, Spain, UK, USA) countries. Results from this analysis (illustrated in Figure 1 and

[1] While we acknowledge limitations surrounding the dichotomy and terminology (Vignoles et al. 2016), we follow established precedents in the cross-culture marketing literature (e.g., see Shavitt and Barnes 2019 for a review) and focus on comparing "Western" (usually North American and Western European) and "Eastern" (usually East Asian) consumers. We comment on potential extensions in the general discussion.

detailed in Web Appendix A) revealed that anthropomorphic traits were significantly more likely to be present in top-selling products from Eastern as opposed to Western countries. Assuming that marketers and brand managers have organically tailored their product and packaging designs to suit local preferences, the seemingly disproportionate popularity of anthropomorphic products in East Asian countries suggests that Eastern consumers might respond more favorably to anthropomorphic products than their Western counterparts.

-----Insert Figure 1 here-----

While past research suggests that some cultural aspects (e.g., industrialized vs. non-industrialized markets) can influence consumers' tendency to anthropomorphize (Epley et al. 2007), surprisingly, no research has empirically tested whether responses to anthropomorphic products are more favorable in Eastern countries, nor examined what particular cultural trait(s) might drive such disparate preferences.

We address this gap by examining how culture influences consumer responses to anthropomorphic products and by uncovering the specific dimension driving such effects. Specifically, we draw from the cross-cultural literature to zero in on a well-established cultural factor in both the psychology and marketing disciplines: collectivism (Maheswaran and Shavitt 2000). We propose that because collectivistic consumers are more motivated to consume in a communal manner than individualistic consumers, and because anthropomorphic objects can serve as social surrogates, anthropomorphic products should in turn be more favored by Eastern consumers (who typically display a high degree of collectivistic tendencies) than by Western consumers (who typically display a lower degree of collectivistic tendencies). Across one cross-national field study and three controlled experiments, we demonstrate that collectivistic consumers display a significantly greater preference for anthropomorphic products than non-

collectivistic consumers. This effect holds across various product categories, regardless of whether collectivistic tendencies are measured, manipulated, or operationalized based on nationality or ethnicity. We offer managerial and theoretical implications that stem from our findings.

This research contributes to the anthropomorphism literature by uncovering a pivotal antecedent influencing consumer responses to anthropomorphic products. Further, we contribute to the cross-cultural literature by demonstrating a systematic difference in how consumers with contrasting cultural orientations respond to anthropomorphic products. Importantly, our findings offer practical insights for marketers operating in the global marketplace, by defining the cultural and situational contexts in which product anthropomorphism can best be employed.

Conceptual Development

Collectivism as a Cultural Dimension

While consumer behavior research has examined a number of cultural dimensions, much of the cross-cultural research in marketing has focused on what is thought to be a particularly robust cross-cultural distinction: individualism versus collectivism (Evanschitzky et al. 2014; Hofstede 1984, 2001; Kim and Park 2019; Triandis 1996). Individualistic cultures (such as those found in North America and Western Europe) tend to foster an independent self-construal that conceptualizes the self as both agentic and distinct from others, whereas collectivistic cultures (such as those found in East Asian countries) tend to foster an interdependent self-construal that defines oneself in terms of relationships with others (Markus and Kitayama 1991). Importantly, while people with an independent self-construal hold a view of the self that emphasizes one's separateness from others, those with an interdependent self-construal tend to stress social

relationships and develop schemas of the self that are connected with others (Markus and Kitayama 1991, 2010).

Academic research has shown that these divergent orientations lead collectivistic and individualistic consumers to exhibit systematic differences in consumption behavior. For example, interdependent consumers have generally been shown to exert more self-control and be less susceptible to impulse buying than independent consumers (Kacen and Lee 2002; Riemer and Shavitt 2011; Zhang and Shrum 2009; though see Hildebrand et al. 2019 for an exception). Interdependents have also been shown to prefer incrementally new products, whereas independents (arguably due to their tendency to define themselves as separate from others) tend to prefer revolutionarily new products (Ma, Yang, and Mourali 2014).

The established differences in self-construal between collectivistic and individualistic consumers also lead to differences in how they view social relationships. Specifically, communal behavior tends to be more pronounced in collectivistic (vs. individualistic) cultures (Hofstede 2011), and this tendency is reflected in consumption preferences and behavior. For example, research has shown that in collectivistic countries (i.e., Japan and Korea), corporate websites are more likely to emphasize consumer-to-consumer interactivity than similar websites in individualistic countries (i.e., U.S. and U.K.; Cho and Cheon 2005). Similarly, one purported reason eBay did not succeed in the Chinese market is because its domestic competitor (Taobao) was better equipped to enable buyer–seller interactions through instant messaging (Lafevre 2013).

Importantly, the value collectivists attribute to communality does not only influence their transaction behaviors, but also drives their consumption behavior. For example, research suggests that collectivistic countries view eating as a social act. In a collection of qualitative in-

depth interviews, Park and colleagues (2017) found that many South Koreans reported that they would rather skip meals than eat alone, and conversely, would join in collective meals with others even when those meals were not consistent with personally held goals (e.g., losing weight).

The literature above collectively (pun not intended) suggests that collectivistic (but not individualistic) consumers will likely prefer communal consumption over solitary consumption. To explore how this disparity might shape consumers' preference for anthropomorphic products, we next integrate literature on anthropomorphism in consumer behavior into our conceptual development.

Anthropomorphic Products

Anthropomorphism, the attribution of human-like properties to nonhuman agents and objects, is generally considered a universal and enduring phenomenon (Epley, Waytz, and Cacioppo 2007). While in principle any object is susceptible to being anthropomorphized (Guthrie 1993) and humans may be hardwired to spontaneously anthropomorphize objects for a variety of reasons (Epley, Akalis, Waytz, and Cacioppo 2008; Epley et al., 2007), the prevalence of anthropomorphic thought in the modern marketplace can at least in part be attributed to the deliberate efforts of marketers in encouraging consumers to view their products as human-like (Kim and McGill 2018; Wan and Aggarwal 2015). Product anthropomorphism can be induced through design features such as visual traits (e.g., eyes and a mouth; Kim and McGill 2011), human-like speech (Lee 2010), bundling (Aggarwal and McGill 2007), and first-person framing (Aggarwal and McGill 2007).

Importantly, anthropomorphism has been shown to transform the potential meaning that consumers' draw from their interactions with brands and products. Specifically, while consumer

interactions with a non-anthropomorphic product might be more utilitarian in nature, anthropomorphic products offer the opportunity for an interaction to be more interpersonal and social (Yang et al., 2020). Findings from both consumer behavior and social psychology support the notion that when individuals encounter anthropomorphized agents, they access their beliefs about the social world in making judgments and decisions (Aggarwal and McGill 2007; Chandler and Schwarz 2010). Indeed, many scholars suggest that individuals can establish relationships with products or brands in similar ways to which they form interpersonal relationships (Fournier 1998) and that consumer reactions to anthropomorphic products can depend on the attitudes they hold towards other humans (Kim and McGill 2018). In fact, research suggests that consumer interactions with anthropomorphic objects can at least partially satisfy social needs (e.g., mitigating previously documented effects of social exclusion; Mourey, Olson, and Yoon 2017).

Cumulatively, research suggests that consumer responses to anthropomorphic product traits are highly dependent on a number of individual and contextual factors. We conducted a selective literature review[2] (displayed in Web Appendix B) documenting how consumers tend to respond to anthropomorphic product traits. Notably, the effect of anthropomorphic product traits on product evaluation (or related dependent variables, such as purchase intention) are typically contingent on a moderating variable, including both contextual factors (e.g., crowdedness; Puzakova and Kwak 2017), and individual-level factors (e.g., political ideology; Chan 2020). Perhaps most pertinent to the current research, scholars have found that socially excluded (vs.

[2] To conduct this review, we included academic and peer-reviewed journals from the Association of Business School's (ABS) 2021 ratings guide that scored 4 and above: *Journal of Consumer Psychology, Journal of Consumer Research, Journal of Marketing, Journal of Marketing Research, Journal of the Academy of Marketing Science, International Journal of Research in Marketing, Marketing Science,* and *Journal of Retailing*. We limited our search to relatively recent papers, spanning 2010-2022.

non-excluded) consumers demonstrate greater preferences for anthropomorphic products (Epley et al. 2008; Hadi and Valenzuela 2014) and brands (Chen, Wan, and Levy 2017) to compensate for their lack of human interpersonal connection. Such findings are consistent with the notion that consumers react more positively to anthropomorphic products when they are motivated by social connection (Yang et al 2020) and are bolstered by social psychology research suggesting that the need for sociality often motivates individuals' tendency to anthropomorphize non-human agents (Epley et al. 2007, 2008).

Importantly, however, social exclusion—be it circumstantial or dispositional—is not the only individual difference that might fuel discrepant motivations to socially connect. The notion that anthropomorphic objects can serve as surrogates fulfilling social needs suggests that the opportunity to interact with such objects should be most valued by those who dispositionally place a high value on social presence and/or connection. This is precisely what we investigate in the current research.

Specifically, we propose that because collectivistic consumers (relative to non-collectivistic consumers[3]) tend to foster an interdependent self-construal and assign *greater value* to communal (vs. solitary) consumption experiences, they should reap greater rewards from consuming anthropomorphic (vs. non-anthropomorphic) products. This in turn suggests that collectivistic consumers should favor anthropomorphic products more than non-collectivistic consumers do. While past research suggests that individuals from industrialized (Epley et al. 2007) and collectivistic (Ghuman et al. 2015) nations are more likely to engage in

[3] While a large body of cross-cultural literature (alluded to earlier in this manuscript) has conceptualized collectivism and individualism as opposite ends of the same spectrum, other work has argued (and empirically demonstrated) that they are in fact separate dimensions (Markus and Kitayama 1991, Oyserman 1993, and Singelis 1994). Thus, for the sake of precision, we developed our hypotheses to focus on consumers low and high in collectivism, respectively.

anthropomorphic thought, we demonstrate that culture, specifically collectivism, can influence consumer responses to anthropomorphic products. In other words, to date cross-cultural research has found differences in who "sees anthropomorphism" whereas we focus on how anthropomorphized products themselves are differentially evaluated. While both are theoretically interesting explorations, the latter offers distinct marketing implications which we elucidate further in the general discussion. Formally, we hypothesize:

> Consumers high in collectivism will evaluate anthropomorphic (vs. non-anthropomorphic) products more favorably, whereas consumers low in collectivism will not display this preference.

Overview of Studies

To test our hypothesis and proposed framework (illustrated in figure 2), we ran a field study and conducted three controlled experiments. For study 1, we ran a cross-national field study on Meta's advertising platform using country of residence as a proxy for collectivism. In this externally valid context, we found that Eastern (vs. Western) consumers were more likely to click on advertisement featuring an anthropomorphic product, whereas there was no difference in click-through rates for non-anthropomorphic products. In study 2, we controlled for marketplace variations by examining the interactive effect of culture and product type on evaluations in a single-country sample (with Asian American and Caucasian American participants). In study 3, we adopted a continuous measure of trait collectivism to confirm that it represents the pivotal cultural dimension driving differences in preference for anthropomorphic products. Finally, study 4 employed a manipulation of collectivism and extended our investigation to actual product consumption, demonstrating that collectivism ultimately increases consumers'

enjoyment of consuming anthropomorphic products. Thus comprehensively, we found support for our predicted hypothesis irrespective of whether collectivism was operationalized by nation of residence (study 1), ethnicity (study 2), measured as a trait (study 3), or procedurally manipulated (study 4). Further, our empirical examination included both visual (studies 1, 3 and 4) and verbal (study 2) manipulations of anthropomorphic traits across various product categories, including both durable and non-durable products.

-----Insert Figure 2 here-----

Study 1: Field Study Using Country as a Proxy for Collectivism

While the secondary marketplace data mentioned in this paper's introduction suggests that anthropomorphic products are more prevalent in the marketplaces of Eastern (vs. Western) nations, we wished to assess whether consumer preferences for anthropomorphic products do indeed differ across cultures. To begin testing our prediction that anthropomorphic products would be favored more by Eastern consumers than by Western consumers, we ran a cross-national field study on Meta's advertising platform (adopting the procedure from Paharia and Swaminathan 2019). Consistent with previous cross-cultural research (Briley, Rudd and Aaker 2017; Lalwani and Wang 2019), we targeted collectivistic and non-collectivistic consumers using country of residence (South Korea and the United Kingdom, respectively) as a proxy, and tracked click-through rates (CTRs) for advertisements featuring a product that either exhibited or lacked anthropomorphic traits. As per our theorizing, we expected that consumers from the Eastern (collectivistic) country would display a greater preference for the anthropomorphic product than consumers from the Western (non-collectivistic) country. Thus, this study aimed to provide preliminary support for our hypothesis in a managerially relevant context.

Design and Procedure

Pretest of anthropomorphic product manipulation. To manipulate anthropomorphic product traits in the featured advertisement, we adopted a manipulation commonly used in previous research (e.g., Hadi and Valenzuela 2014; Hur, Koo, and Hofmann 2015; Landwehr, McGill, and Herrman 2011; Touré-Tillery and McGill 2015): participants were presented with an advertisement for a reusable glass water bottle that either exhibited or lacked a pair of eyes and a neutral mouth on the front (see Appendix B for images of the stimuli). To ensure this manipulation was indeed manipulating anthropomorphic traits, we ran an online pretest with one hundred participants (47% female, M_{age}= 37.56, SD = 10.99) recruited from CloudResearch's Connect platform. Participants were randomly assigned to one of the two advertisement conditions and were asked to evaluate the presence of anthropomorphic product traits (on three 7-point Likert items adapted from Kim and McGill 2018: "I see some humanlike features in this product," "I see the marketers' intention to design this product as resembling a human," and "This product looks like a person," 1=strongly disagree 7=strongly agree; α = .95). ANOVA results demonstrated that participants did indeed perceive the product in the anthropomorphic advertisement condition to be more anthropomorphic than the product in the non-anthropomorphic advertisement ($M_{\text{Anthropomorphic}}$ = 4.71 vs. M_{Control} = 1.77, $F(1, 98) = 109.45$, $p <$ .001).

Pretest of neutral emotional expressions. Because the anthropomorphic trait manipulation in this study included both a mouth and eyes, we wanted to ensure the emotional expression would be considered neutral. Accordingly, fifty individuals (46% female, M_{age}= 36.42, SD = 10.78) recruited from CloudResearch's Connect platform were asked to evaluate only the anthropomorphic bottles on two 7-point Likert-scaled items ("This face has a neutral expression; "This face is emotionless" 1= strongly disagree 7= strongly agree). T-test results demonstrated

that responses to the Likert items were significantly above the mid-point, suggesting that participants agreed that the face represented a neutral expression ($M = 5.32$; $t(49) = 5.22$, $p < .001$) and was emotionless ($M = 5.18$; $t(49) = 4.57$, $p < .001$). Accordingly, we employed this manipulation of anthropomorphic traits in the main study.

Main study. The main study was a 2 (Product: Anthropomorphic vs. Control) x 2 (Country: South Korea vs. United Kingdom) between-subjects design. As mentioned, we followed a procedure from prior literature (Paharia and Swaminathan 2019) to run this study on the Meta advertising platform[4] targeting users in two different countries. We chose to run our study in South Korea and the United Kingdom, two nations that are of similar population size and digital literacy rates[5], but that rate high and low in collectivism respectively[6] (Hofstede, Hofstede, and Minkov 2010). Extant cross-cultural research in marketing often uses two countries that vary on one cultural dimension (e.g., collectivism) as a way to demonstrate the effect of that trait on consumer behavior (Aaker and Maheswaran 1997; Bellezza, Paharia, and Keinan 2017). Although many factors are likely to vary across nations and we are unable to control for all potential confounds, our aim in this field study was to demonstrate the effect in a real-world, managerial relevant context, and we more cleanly isolate the effect of collectivism in our subsequent studies.

[4] In Paharia and Swaminathan 2019, the platform was still called Facebook ad manager, as that research was conducted before the company changed its name to Meta Platforms Inc. However, despite the re-brand, the advertising platform continues to operate in largely the same manner.
[5] South Korea's population is 51,844,834 with 89.72% digital literacy and the United Kingdom's population is 67,791,400 with 85.83% (The World Factbook: CIA; Digital Competitiveness rankings: Statista).
[6] South Korea has a collectivism score of 82 while the United Kingdom has a collectivism score of 11 (Hofstede, Hofstede, and Minkov 2010), and previous research has used these countries to represent high and low levels of collectivism respectively (Park et al. 2008; Rhee, Uleman and Lee 1996).

Following the procedure of Paharia and Swaminathan (2019), we set identical campaign budgets for each of the four advertisements and selected to optimize the ad campaigns for clicks[7] (rather than impressions). In this setup, the advertiser pays only for the number of times an advertisement was clicked on. For the purposes of our study, we wanted to assess how many impressions (i.e., views) were needed to attain a given number of clicks, and accordingly calculated the click-through rate (CTR; which equals the number of clicks divided by the number of impressions, and is a common metric used to assess advertising effectiveness; Sigel, Braun and Sena 2008) achieved for each advertisement. If one advertisement achieves a significantly higher CTR than another advertisement (meaning it required fewer impressions per click), the former is thought to have performed significantly better.

Using the Meta Ads Manager system, we ran four campaigns[8] targeting users based in either South Korea or the United Kingdom with the water bottle advertisement that either exhibited or lacked anthropomorphic traits (as manipulated in the pretest above; see Appendix B). The campaigns ran over a four-day period (again following the precedent of Paharia and Swaminathan 2019), and the advertising platform recorded the number of impressions and clicks for each campaign during that period.

Results and Discussion

[7] The ad campaigns were set up with automatic bidding, meaning the actual cost per click (CPC) is based on the platform's algorithm, which uses auctions for ad space at any given time. Thus, an advertiser may pay different amounts for clicks on the same advertisement depending on concurrent competing ads and their bids. While the algorithm is proprietary, we have no reason to expect it would operate differently across our different advertisement conditions.

[8] We did not restrict the platforms in which the advertisements could be placed (they could appear in Facebook, Instagram, or Messenger). However, within each platform, we only selected formats that suited a static image advertisement (as opposed to video, reels, etc.) due to the static format of our stimuli.

The study amassed a total of 9,466 impressions across the four campaign conditions (details of the impressions, clicks, and CTRs for each campaign are presented in Web Appendix C). We used this data to conduct a binomial logistic regression, with the number of impressions (i.e., the number of times the ads were on screen) representing the number of trials and the number of clicks representing the number of successful events, to assess the effects of the two independent variables (country and advertised product) and their interaction on the likelihood of an advertisement getting clicked on. Results demonstrated significant main effects of country (β = -.77, SE = .20, Wald χ^2 = 15.28, $p < .001$) and product (β = -.64, SE = .31, Wald χ^2 = 4.33, p = .04), and a significant country x product interaction (β = .77, SE = .39, Wald χ^2 = 3.89, p = .049) on click-through likelihood. As predicted and as illustrated in figure 3, pairwise comparisons revealed that Korean viewers were more likely to click on the anthropomorphic (vs. control) advertisement ($CTR_{Control}$ = 1.43% vs. $CTR_{Anthropomorphic}$ = 2.68%; p = .01), whereas British viewers displayed no difference in CTRs across the two advertisements ($CTR_{Control}$ = 1.43% vs. $CTR_{Anthropomorphic}$ = 1.26%; p = .59). Additional pairwise comparisons demonstrated that Korean viewers were significantly more likely to click on the advertisement featuring the anthropomorphic product than British viewers were ($p < .001$). In the control (non-anthropomorphic) product condition, there was no difference in click-through likelihood between the two countries (p = .99).

-----Insert Figure 3 here-----

To summarize, this study provided initial evidence in a managerially relevant context that consumer preferences for anthropomorphic traits do indeed differ across national boundaries, specifically suggesting that the preference for anthropomorphic products may be significantly greater in Eastern (vs. Western) countries.

Study 2: Controlling for Marketplace Variations with a Single-Country Sample

The purpose of study 2 was two-fold. First, we wanted to replicate the effect found in the field study, while controlling for any marketplace variations that may have played a role. Specifically, one might argue that any relative preferences for anthropomorphic products displayed by Eastern (Korean) consumers in study 1 could have been driven by an increased prevalence of anthropomorphic products in that marketplace as compared to the Western (UK) marketplace. To cast doubt on this explanation, we adopted a common procedure in cross-cultural research (e.g., Briley, Rudd and Aaker 2017; Lalwani and Wang 2018) by conducting an experiment on a single-country sample including participants from cultural backgrounds both high (Asian Americans) and low (Caucasian Americans) in collectivism. This design allowed us to control for many non-cultural factors that might affect study results (e.g., differential exposure to anthropomorphic products in the marketplace). Second, to increase the robustness of our exploration, we employed an alternative manipulation of anthropomorphic product traits.

Design and Procedure

Pretest of anthropomorphic product manipulation. To manipulate anthropomorphic traits, we adapted an operationalization from previous research by employing a first-person versus third-person voice (e.g., Aggarwal and McGill, 2007; Hur et al., 2015). In the anthropomorphic condition, we described a tablet—the focal product in this study—in a first-person voice ("I"), while in the non-anthropomorphic condition, we described the same product using objective and impersonal language ("It") (see Appendix C for depictions of the stimuli). Once again, to ensure the stimuli manipulated anthropomorphic traits, we ran an online pretest with 100 participants recruited from Amazon Mechanical Turk. Participants were randomly assigned to one of the two

product conditions and asked to evaluate the presence of anthropomorphic product traits (adapting the measures from the study 1 pretest, e.g., "This product sounds like a person," α = .85). ANOVA results demonstrated that participants did indeed perceive the tablet (Hur et al. 2015) described in a first-person voice to be more anthropomorphic than the product described in a third-person voice ($M_{\text{Anthropomorphic}}$ = 3.60 vs. M_{Control} = 2.04, $F(1, 98) = 26.53$, $p < .0001$). Accordingly, we used these stimuli in our main study.

Main Study. Two hundred and three respondents (45% female, M_{age}= 34.02, SD = 10.07) participated in our study in exchange for monetary compensation. The study was a 2 (Product: Anthropomorphic vs. Control) x 2 (Ethnicity: Asian American vs. Caucasian American) between-subjects design. We used TurkPrime panels (Litman, Robinson, and Abberbock 2017) to access both Asian American (N = 99) and Caucasian American (N = 104) online participants (a sampling distinction in keeping with previous cross-cultural research, e.g., Briley, Rudd and Aaker 2017; Lalwani and Wang 2018). Participants were presented with an image of a tablet accompanied by text that was either anthropomorphic or not (as manipulated in the pretest, see Appendix C). Participants were then asked to evaluate the tablet on nine 7-point bipolar items: Dislike/Like, Negative/Positive, Unfavorable/Favorable, Poor Quality/High Quality, Bad/Good, Unappealing/Appealing, Unpleasant/Pleasant, Boring/Interesting, Questionable Quality/ Unquestionable Quality (α = .97). Finally, participants responded to a suspicion probe (open-ended) and reported their age and gender (please see Web Appendix D for results of covariate analyses).

Results and Discussion

Product evaluation. None of the participants guessed the hypothesis. ANOVA results revealed a significant Ethnicity x Product interaction on product evaluations ($F(1, 199) = 11.14$,

p = .001). Neither of the main effects was significant (both p's > .40). An analysis of contrasts supported our predictions: Asian Americans displayed more positive evaluations of the anthropomorphic tablet than the non-anthropomorphic tablet ($M_{\text{Anthropomorphic}}$ = 5.19 vs. M_{Control} = 4.61, F(1, 199) = 5.24, p = .02). Interestingly, though not hypothesized, Caucasian Americans displayed more positive evaluations of the non-anthropomorphic (vs. anthropomorphic) tablet ($M_{\text{Anthropomorphic}}$ = 4.72 vs. M_{Control} = 5.36, F(1, 199) = 5.90, p = .02; we discuss this intriguing reversal in the general discussion). In addition, Asian Americans showed marginally greater preference for the anthropomorphic tablet than Caucasian Americans did (M_{Asian} = 5.19 vs. $M_{\text{Non-Asian}}$ = 4.72, F(1,199) = 3.37, p = .07), while the reverse was true for the non-anthropomorphic tablet (M_{Asian} = 4.61 vs. $M_{\text{Non-Asian}}$ = 5.36, F(1,199) = 8.33, p = .004); see figure 4 for an illustration of contrasts).

-----Insert Figure 4 here-----

In summary, this study demonstrated that culturally contingent preferences for anthropomorphic products are not merely determined by the greater prevalence of such products in local marketplaces but are likely driven by more innate cultural differences. Our next two studies focus on identifying the cultural dimension we believe to be driving such differential responses: collectivism.

Study 3: Collectivism as the Pivotal Cultural Trait

Study 3 served two major purposes. First, while studies 1 and 2 examined how responses to anthropomorphic product traits might vary cross-culturally, we wished to zero in on the specific cultural trait driving the effects: collectivism (as per our theorizing). Accordingly, we measured participants' trait collectivism using an established continuous scale from the literature

(Triandis 1996). In doing so, we examined how collectivism might reproduce the interactive effect found when operationalizing culture cross-nationally and ethnically. Second, we used this study to test a plausible alternative cultural trait that could be driving the differential preference for anthropomorphic products: uncertainty avoidance. Notably, some extant research has found a correlation between collectivism and uncertainty avoidance (Lim, Leung, Sia and Lee 2004), and prior research suggests that anthropomorphism can be used to reduce uncertainty and increase feelings of control (Epley et al. 2007). Further, a recent meta-analysis suggests that when uncertainty is salient, anthropomorphic (vs. non-anthropomorphic) appeals are more influential (Velasco, Yang and Janakiraman 2021). Accordingly, in this study we explicitly measured and tested whether uncertainty avoidance could be the driver explaining differences in preference for anthropomorphic products.

Design and Procedure

Pretest of anthropomorphic product manipulation. To manipulate anthropomorphic product traits in the featured advertisement, we adopted a similar approach as in study 1 but in a non-durable product category (candy). This time, for the anthropomorphic condition, we selected an existing product that had a face on the package, and simply removed the face for the control condition (see Appendix D for images of the stimuli). Once again, to ensure the images manipulated anthropomorphic traits, we ran an online pretest with 101 participants recruited from Amazon Mechanical Turk (via the CloudResearch platform). Participants were randomly assigned to one of the two product conditions and asked to evaluate the presence of anthropomorphic product traits (α = .94) (using the same measures as in the study 1 pretest). ANOVA results demonstrated that participants did indeed perceive the candy with the face to be

more anthropomorphic than the candy without the face ($M_{\text{Anthropomorphic}}$ = 3.86 vs. M_{Control} = 1.43, $F(1, 99) = 90.79$, $p < .001$). Accordingly, we used these stimuli as a manipulation of anthropomorphic product traits in our main study.

Main Study. One hundred ninety-nine US-based individuals (60% male, M_{age} = 37.88, SD = 10.96) recruited from Amazon Mechanical Turk participated in the main study in exchange for monetary compensation. The study had a two-level (Product: Anthropomorphic vs. Control) between-subjects design with trait collectivism measured as a continuous predictor. After indicating consent, participants were randomly assigned to evaluate either the anthropomorphic candy or the non-anthropomorphic candy (based on the images in the aforementioned pretest) using the same measure as in study 2 (α = .96). Then, all participants completed an 8-item scale measuring their trait collectivism (from Triandis 1996; e.g., "It is important for me to maintain harmony within my group," 1 = strongly disagree and 7 = strongly agree; α = .81; see Appendix E for all items), and a 6-item scale measuring uncertainty avoidance (from Hofstede 2011; e.g., "I am comfortable with ambiguity and chaos," 1=strongly disagree and 7=strongly agree; α = .65; see Appendix F for all items). Finally, participants reported their age and gender (please see Web Appendix E for results of covariate analyses).

Results and Discussion

ANOVA results demonstrated a significant main effect of product anthropomorphism on product evaluation ($M_{\text{Anthropomorphic}}$ = 4.52 vs. M_{Control} = 4.05, $F(1, 197) = 4.88$, $p = .03$). More importantly, a moderation analysis (using PROCESS model 1 of Hayes 2017) with Product (anthropomorphic vs. control) as the independent variable and Collectivism as a continuous moderator produced a significant Collectivism x Product interaction on product evaluation of the

candy (b = .64, se = .20, $t(195) = 3.12$, $p < .01$). An examination of conditional effects revealed that participants high in trait collectivism (+1 SD above the mean) showed more positive evaluations for the anthropomorphic (vs. non-anthropomorphic) candy ($M_{\text{Anthropomorphic}} = 5.02$ vs. $M_{\text{Control}} = 3.92$; b = 1.10, se = .29, $t(195) = 3.80$, $p = .0002$). For those low in trait collectivism (-1 SD below the mean), there was no significant difference in evaluations for the two candies ($M_{\text{Anthropomorphic}} = 4.00$ vs. $M_{\text{Control}} = 4.18$; b = -.18, se = .29, $t(195) = .62$, $p = .54$). Moreover, in the anthropomorphic condition, participants high (+1 SD above the mean) as opposed to low (-1 SD below the mean) in trait collectivism showed more positive evaluations for the candy ($M_{\text{High\_collectivism}} = 5.02$ vs. $M_{\text{Low\_collectivism}} = 4.00$; b = .51, se = .15, $t(195) = 3.49$, $p < .001$). In comparison, for those who evaluated the candy in the control condition, there was no significant difference between participants at high and low levels of collectivism ($M_{\text{High\_collectivism}} = 3.92$ vs. $M_{\text{Low\_collectivism}} = 4.18$; b = -.13, se = .14, $t(195) = -.89$, $p = .37$; see figure 5 for an illustration of contrasts).

-----Insert Figure 5 here-----

Uncertainty Avoidance. As mentioned, we also wanted to assess whether uncertainty avoidance represents an alternative cultural trait that could explain our findings. To assess this possibility, we first ran a moderation analysis identical to the above, but with trait uncertainty avoidance (instead of collectivism) as the continuous moderator. The interactive effect of Uncertainty Avoidance x Product on product evaluation was not significant (b = .31, se = .20, $t(195) = 1.53$, $p > .10$). This suggests that uncertainty avoidance is unlikely to drive differences in preference for anthropomorphic products. To add further robustness, we also reran the moderation analysis with trait collectivism as the moderator while controlling for uncertainty avoidance as a covariate. The results replicated both the significant interactive effect of

Collectivism x Product on product evaluation (b = .58, se = .20, $t(194) = 2.89$, $p < .01$) and the conditional effects: participants high in trait collectivism (+1 SD above the mean) again showed more positive evaluations for the anthropomorphic (vs. non-anthropomorphic) candy (b = 1.00, se = .29, $t(194) = 3.46$, $p < .01$), while for those low in trait collectivism (-1 SD below the mean), there was no significant difference in evaluations for the two candies (b = -.18, se = .29, $t(194) = -.63$, $p = .53$). Moreover, in the anthropomorphic product condition, participants high (+1 SD above the mean) as opposed to low (-1 SD below the mean) in trait collectivism again showed more positive evaluations for the candy (b = .45, se = .15, $t(194) = 3.12$, $p = .0021$), but in the control condition, there was no significant difference between participants at high and low levels of collectivism (b = -.1304, se = .14, $t(194) = -.93$, $p = .35$).

In summary, while studies 1 and 2 demonstrated that consumers from Eastern (typically collectivistic) cultures favor anthropomorphic products more than consumers from Western (typically non-collectivistic) cultures, the current study showed that the same pattern emerged when measuring collectivism explicitly, hence adding more definitive support for our hypothesis. In addition to supporting collectivism as the underlying cultural dimension driving differential preference for anthropomorphic products, this study also ruled out an alternative explanation based on uncertainty avoidance.

Study 4: Manipulated Collectivism and Extension to Consumption Enjoyment

Our final study builds on the previous studies in at least two major ways. First, while study 3 measured trait collectivism to support its pivotal role in driving differential evaluations of anthropomorphic products, this study sought to add further support for the role of collectivism by manipulating it procedurally. Second, we opted to run this study in a laboratory with

immediately consumable stimuli so that we could not only measure participants' expected evaluation of the product, but also measure their actual enjoyment upon consuming the product (a critical determinant of marketplace behaviors such as repurchase, recommendation, and willingness to pay; Anderson and Sullivan 1993; Homburg, Koschate, and Hoyer 2005).

Design and Procedure

Pretest of anthropomorphic product manipulation. Similar to studies 1 and 3, we again opted for a visual manipulation of anthropomorphic product traits in this study. Specifically, participants were presented with an image of chocolate candies (M&Ms), all of which were white-colored and had an "M" imprinted on one side. In the control condition, the other side of the candies was blank, while in the anthropomorphic condition, the other side of the candies had a neutral face imprinted on them (similar to the neutral face in study 1 stimuli and previous literature; Hadi and Valenzuela 2014; Hur, Koo, and Hofmann 2015; Landwehr, McGill, and Herrman 2011; Touré-Tillery and McGill 2015; see Appendix G for images of the stimuli). Moreover, to ensure this manipulation would lead to different levels of anthropomorphic thought without manipulating overall attractiveness, we ran an online pretest with 100 participants recruited from Amazon Mechanical Turk. Participants were randomly assigned to one of the two product conditions and asked to evaluate the presence of anthropomorphic product characteristics (α = .93) (same measures as in the previous pretests). ANOVA results demonstrated that participants did indeed perceive the product with the face to be more anthropomorphic than the product without the face ($M_{\text{Anthropomorphic}}$ = 4.78 vs. M_{Control} = 1.61, $F(1, 98) = 130.84$, $p < .0001$).

Pretest of neutral emotional expression. Similar to the pretest in study 1, this anthropomorphic trait manipulation included both a mouth and eyes, thus we wanted to ensure

the emotional expression would be considered neutral. Accordingly, 31 participants recruited from Amazon Mechanical Turk were asked to evaluate only the anthropomorphic candies on two 7-point Likert-scaled items ("This face has a neutral expression; "This face is emotionless" 1=strongly disagree 7=strongly agree). T-test results demonstrated that responses to the Likert items were significantly above the mid-point, suggesting that participants agreed that the face represented a neutral expression ($M = 5.39$; $t(30) = 4.69$, $p < .0001$) and was emotionless ($M = 5.16$; $t(30) = 3.20$, $p = .003$). Accordingly, we employed this manipulation of anthropomorphic traits in the main study.

Main study. Two hundred and thirty-seven undergraduate students (47% female, M_{age}= 21.76, SD = 4.40) participated in this 2 (Product: Anthropomorphic vs. Control) x 2 (Collectivism: High vs. Low) between-subjects design in exchange for course credit. To manipulate collectivism, we adapted an open-ended response protocol used in previous literature (Trafimow, Triandis, and Goto 1991). Participants in the low-collectivism condition were asked, "What makes you different from your family and friends? What do you expect yourself to do?" while those in the high-collectivism condition were asked, "What do you have in common with your family and friends? What do they expect you to do?" All participants were told to engage in the task for a minimum of two minutes and to write at least six sentences.

Next, as part of a purportedly separate study, participants were told they would be asked to taste and evaluate some chocolate candies. All participants were then given a cup of either the anthropomorphic or non-anthropomorphic chocolate candies, manipulated as per the pretest. Participants were instructed to eat as many of the candies as they wished and to indicate their enjoyment of the product (on three 7-point Likert scaled items: "I enjoyed this candy", "I like the way this candy tastes", and "I would like another serving of this candy right now," $\alpha = .87$).

Afterwards, participants reported their age and gender (please see Web Appendix F for results of covariate analyses).

Results and Discussion

Manipulation check. To ensure that the collectivism manipulation was successful, we used natural language processing software (LIWC; Pennebaker, Booth, Boyd, and Francis 2015) to analyze the open-ended passages participants wrote. Specifically, we assessed the frequency of first-person singular (e.g., "I", "me", "mine") and first-person plural (e.g., "we", "us", "our") pronoun use, given the former is indicative of an individualistic orientation and the latter of a collectivistic orientation (Na and Choi 2009; Yu et al. 2016). ANOVA results demonstrated a significant effect of the Collectivism manipulation on participants' use of both first-person singular ($F(1, 235) = 127.75$, $p < .001$) and first-person plural words ($F(1, 235) = 125.40$, $p < .001$). Participants in the high-collectivism condition used more first-person plural words ($M_{\text{High\_Collectivism}} = 3.85$ vs. $M_{\text{Low\_Collectivism}} = .30$) and fewer first-person singular words ($M_{\text{High\_Collectivism}} = 10.21$ vs. $M_{\text{Low\_Collectivism}} = 15.87$) than participants in the low-collectivism condition, suggesting the manipulation was indeed successful.

Enjoyment. ANOVA results revealed a significant Collectivism x Product interaction on enjoyment of the chocolate candies ($F(1, 233) = 6.75$, $p = .01$). Neither of the main effects was significant ($p's > .25$). An analysis of contrasts within the anthropomorphic product condition was again consistent with our predictions: those in the high-collectivism condition reported marginally greater enjoyment of the anthropomorphic versus the non-anthropomorphic candies ($M_{\text{Anthropomorphic}} = 5.71$ vs. $M_{\text{Control}} = 5.24$; $F(1, 233) = 3.08$, $p = .08$), and those in the low-collectivism condition showed the reverse pattern, displaying marginally greater enjoyment of the non-anthropomorphic candies ($M_{\text{Anthropomorphic}} = 5.02$ vs. $M_{\text{Control}} = 5.53$; $F(1, 233) = 3.68$, $p =$

.06; see figure 6 for an illustration of contrasts). Further, those in the high-collectivism condition indicated significantly greater enjoyment of the anthropomorphic candies than those in the low-collectivism condition did ($M_{Low\_Collectivism}$ = 5.02 vs. $M_{High\_Collectivism}$ = 5.71; $F(1, 233) = 6.98$, p = .009). The collectivism manipulation did not influence enjoyment for the non-anthropomorphic candies ($M_{Low\_Collectivism}$ = 5.53 vs. $M_{High\_Collectivism}$ = 5.24; $F(1, 233) = 1.14$, p = .29).

-----Insert Figure 6 here-----

Results from this study demonstrate once again that collectivism improves attitudes towards anthropomorphic products, this time employing a manipulation of collectivism. Further, we show that the effects of collectivism do not only increase pre-consumption product evaluations, but also improve actual consumer enjoyment of consuming such products.

General Discussion

This research was motivated by the seemingly disproportionate popularity of anthropomorphic products in Eastern (vs. Western) countries. Surprisingly, marketers were afforded little guidance from consumer research about whether and why such differences may exist. Results from four studies address this gap by empirically demonstrating that culture does indeed interact with anthropomorphic product characteristics to drive product evaluations, and by identifying the specific cultural dimension driving such effects. Specifically, using a cross-national field study (study 1), and both online (studies 2 and 3) and laboratory (study 4) experiments, we show that collectivistic consumers prefer anthropomorphic products to non-anthropomorphic products, while the same does not apply to non-collectivistic consumers. These results held irrespective of whether collectivism was operationalized by nation of residence (study 1), ethnicity (study 2), measured as a trait (study 3), or procedurally manipulated (study

4). Our empirical package is robust in that it reflects both visual and verbal manipulations of anthropomorphic traits, across an array of durable and non-durable products.

Marketing Implications

Importantly, the current research provides a number of actionable insights and managerial implications. Perhaps the most straightforward implication is that manufacturers and brand managers of anthropomorphic products may wish to systematically target highly collectivistic consumers (this implication might be particularly useful for manufacturers of inherently anthropomorphic products, like humanoid robots). This can be achieved cross-nationally by targeting countries and cultures whose consumers are known to exhibit collectivistic tendencies (e.g., Eastern cultures; as shown in study 1). Importantly, however, such implications do not only apply on an international scale. Given the microtargeting capabilities of modern digital marketing platforms, brands may wish to adapt their messages according to domestic variations in trait collectivism. Such intra-country variations may manifest according to ethnicity (as evinced by study 2) but may also be discernable through psychographic targeting (as demonstrated by our measure of trait collectivism in study 3). Our findings might also provide insights for multi-national companies who find product design and packaging elements to be more effective in some regions than others. The results of our studies would suggest that anthropomorphic product characteristics are likely to perform better in Eastern/collectivistic countries than in Western/non-collectivistic countries (in fact, two of our studies suggest anthropomorphic traits might actually hurt product evaluation in the latter populations).

Interestingly, our finding that manipulations of collectivism can also improve consumer evaluations of anthropomorphic products (study 4) suggests that marketers of inherently

anthropomorphic products in non-collectivistic markets may wish to use advertising copy or other contextual factors to evoke collectivistic thought when promoting their products.

Further, our findings imply that brands and product designers operating in highly collectivistic regions might wish to add anthropomorphic elements to their offerings. While some anthropomorphic design elements (e.g., product form) may be costly to customize by region, subtle packaging manipulations can incorporate visual or verbal anthropomorphic cues (as seen in study 3, for example) at a relatively lower cost (particularly since product packaging and labels often differ in any case to accommodate local languages).

In addition to considering tangible product adaptations, practitioners can also use advertising and communications to efficiently convey anthropomorphic traits in select markets. For example, in a recent Instagram campaign, Chanel promoted a new body oil using first-person framing (e.g., "My name is Huile de Jasmin… I am not just an oil, I will make you radiate."). Our findings suggest that marketers may wish to selectively employ such anthropomorphic communication appeals in highly collectivistic markets.

Theoretical Contributions

Our work also offers theoretical contributions to various academic literatures. First, we contribute to literature on anthropomorphism by addressing explicit calls (e.g., see Landwehr, Gill, and Hermann 2011) to explore how culture might interact with anthropomorphic traits to determine consumer responses. Previous research has uncovered an array of dispositional differences, including loneliness (Epley, Waytz and Cacioppo 2007), need for control (Epley, Waytz, Akalis, and Cacioppo 2008), and social power (Kim and McGill 2011), that moderate the effect of anthropomorphism on individuals' responses. However, to the best of our knowledge,

our work is the first to demonstrate that consumer responses to anthropomorphic products systematically differ across cultures. Not only does this represent a novel moderator in the anthropomorphism literature, but it also carries with it specific and actionable practical insights (as discussed in the preceding section).

Our investigation also makes a novel contribution to cross-cultural marketing research. Scholars in this field have shown that culture can meaningfully shape consumers' goal-pursuit (Aaker and Lee 2001), impulse consumption (Zhang and Shrum 2009), and prosocial behavior (Winterich and Zhang 2014), among other behaviors. We add to this body of work by documenting how culture generally, and collectivism specifically, influences consumer responses to anthropomorphic products. This addition is substantively important, given that anthropomorphic elements are commonly used in product packaging, marketing communications, and product design around the world (Valenzuela and Hadi 2014).

Future Research

Our work also introduces several potential directions for future research. Given that the current work was an initial exploration of how culture interacts with anthropomorphic product characteristics, we focused our investigation on the presence versus absence of such characteristics. However, future research might move beyond this binary distinction to develop a more nuanced understanding of how culture influences consumer responses to specific forms of anthropomorphism. For example, brands often carry humanlike personality traits (Aaker 1997), and it might be the case that consumers' cultural orientation influences their attitudes towards different brand personalities. To illustrate, a brand perceived to be friendly might satisfy the social needs of a collectivistic consumer and may accordingly attenuate the benefit of any added

visual or verbal anthropomorphic features. Other researchers may be interested in whether such attenuation may also result from "real" human companionship, that is, whether anthropomorphic features would be less appealing to collectivistic consumers when these consumers consume the products with others than alone. An understanding of such potential interactions and boundary conditions would provide more fine-tuned guidance for marketers designing gestalt communication strategies.

Furthermore, while this work adopted a cross-cultural focus and found a positive effect of collectivism on consumer responses to anthropomorphic products, future research might wish to concentrate on the opposite cultural trait: individualism. As previously mentioned, results of study 2 and study 4 (marginally) demonstrated a negative effect of anthropomorphic traits for non-collectivistic consumers. While we had no a priori prediction of such a reversal and it falls outside the scope of the current work, future research could more thoroughly investigate the potential psychological mechanisms leading individualistic consumers to at least sometimes devalue products with anthropomorphic traits. For example, previous research has shown that anthropomorphic helpers in video games can undermine players' sense of autonomy (Kim, Chen, and Zhang 2016). Accordingly, it is plausible that individualistic consumers eschew companionship or sociality (and anthropomorphic product characteristics accordingly) as a way to demonstrate their sense of agency or individuality/uniqueness. Another plausible explanation could be that individualistic consumers' lower evaluations of anthropomorphic products are an expression of psychological reactance (Brehm 1966) stemming from persuasion knowledge (Campbell and Kirmani 2000, Friestad and Wright 1995), particularly given that the manipulation in study 2 (the long verbal description of the tablet) was arguably the most heavy-handed. We encourage future research to explore this intriguing possibility.

Moreover, it seems unlikely that collectivistic consumers would prefer anthropomorphic products under all circumstances. For example, previous research has shown that brand anthropomorphism harms attitudes when consumers are in crowded environments and want to socially withdraw (Puzakova and Kwak 2017). Other research has shown that low-power consumers perceive risk-bearing entities (e.g., skin cancer) to be riskier when the entities are anthropomorphized (Kim and McGill 2011). Future research could test whether such contexts serve as boundary conditions that limit collectivistic consumers' more positive attitude toward anthropomorphic products.

Finally, despite our emphasis on the specific cultural trait (i.e., collectivism) driving observed differences in consumer responses to anthropomorphic products, our research was motivated by a traditional "East" versus "West" distinction (a common geographical dichotomy used in the cross-cultural literature, focusing on comparing individuals from East Asia to those from North America and Western Europe respectively). We acknowledge, as have other scholars, that this dichotomy may be overly simplistic in that it blurs differences within those regions and excludes many regions that do not neatly fit within such a binary classification (Vignoles et al. 2016). Thus, future researchers may wish to more broadly assess behavioral patterns across the globe, to build a richer and more comprehensive understanding of how consumer responses to anthropomorphic products may be, at least in part, culturally determined.

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APPENDICES

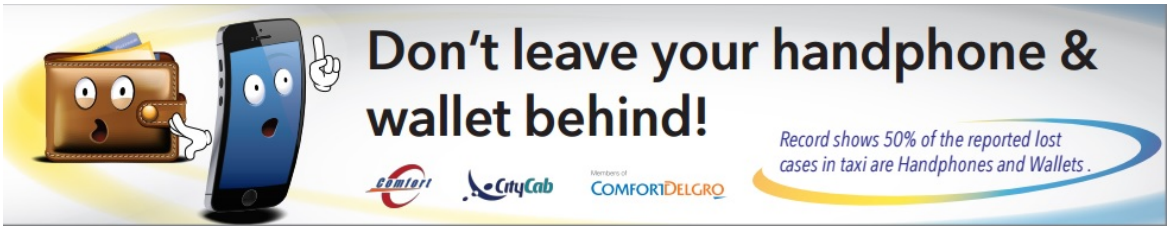
APPENDIX A

MARKETPLACE EXAMPLES OF ANTHROPOMORPHIC PRODUCTS IN EAST ASIAN COUNTRIES

South Korean examples:

Japanese example:

Singaporean example:



APPENDIX B

ADVERTISEMENT STIMULI USED IN STUDY 1

Control Advertisement:

Anthropomorphic Condition:

APPENDIX C

PRODUCT STIMULI USED IN STUDY 2

Product in Control Condition:

This is a new Pocket TV that is coming out this summer. It has a great screen display and fast internet (4G). It can stream thousands of movies, TV shows, and videos through Netflix and Youtube. It also has a user-friendly touch screen interface, so you can get to your shows faster. With a 128 GB hard drive, you can fill it with all your favorite videos. It can also make good suggestions on the newest TV shows and movies depending on your past choices.

Since it only weighs 4.2 ounces, you can carry it anywhere you want! Take it to the park, to class or even around the world!

Product in Anthropomorphic Condition:

Hi, my name is Pat, a new Pocket TV that is coming out this summer. I have a great screen display and fast internet (4G). I can stream thousands of movies, TV shows, and videos through Netflix and Youtube. I also have a user-friendly touch screen interface, so you can get to your shows faster. With a 128 GB hard drive, you can fill me with all your favorite videos. I can also make good suggestions on the newest TV shows and movies depending on your past choices.

Since I only weigh 4.2 ounces, you can carry me anywhere you want! Take me to the park, to class or even around the world!

APPENDIX D

PRODUCT STIMULI USED IN STUDY 3

Control Condition

Anthropomorphic Condition

APPENDIX E

COLLECTIVISM ITEMS USED IN STUDY 3

All items taken from Triandis 1996, and measured on a 7-point Likert Scale (1=strongly disagree 7=strongly agree):

- I would do what would please my family, even if I detested that activity.
- I usually sacrifice my self-interest for the benefit of my group.
- It is important to me that I respect the decisions made by my groups.
- Self-sacrifice is a virtue.
- The well-being of my coworkers is important to me.
- If a relative were in financial difficulty, I would help within my means.
- It is important to me to maintain harmony within my group.
- I like sharing little things with my neighbors.

APPENDIX F

UNCERTAINTY AVOIDANCE ITEMS USED IN STUDY 3

All items taken from Hofstede 2011, and measured on a 7-point Likert Scale (1=strongly disagree 7=strongly agree):

- The uncertainty inherent in life is accepted and each day is taken as it comes.
- Teachers may say ‘I don’t know’.
- I am comfortable with ambiguity and chaos.
- I don't like written or unwritten rules.
- Changing jobs is not a problem for me.
- I have tolerance of deviant persons and ideas: what is different is curious.

APPENDIX G

PRODUCT STIMULI USED IN STUDY 4

Product in Control Condition:

Product in Anthropomorphic Condition: