The Mechanism of Persuasive Effects of Anthropomorphic Spokespersons: The Mediating Role of Parasocial Interaction and Positive Emotion

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Abstract

Using anthropomorphic characters (such as anime characters and virtual idols) as brand endorsers is a common marketing strategy in the advertising industry, yet few scholars have examined the impact of consumers' anthropomorphic perception on endorser persuasiveness. Previous research has categorized anthropomorphic perception into two types: systematic and heuristic. Systematic anthropomorphism treats anthropomorphic targets as individuals capable of generating social interaction, whereas heuristic anthropomorphism is an automatically triggered implicit effect. Based on these two types of anthropomorphic perception, this study examines how consumers' anthropomorphic tendency influences the persuasive effects of different types of advertising endorsers (real human/anthropomorphic). Experimental data demonstrate that, moderated by individual anthropomorphic tendency, consumers' parasocial interaction perception with endorsers and positive emotions simultaneously influence advertising persuasiveness. Participants with low anthropomorphic tendency exhibited significantly higher parasocial interaction perception toward real human endorsers than toward anthropomorphic endorsers; participants with high anthropomorphic tendency showed significantly higher positive emotions toward anthropomorphic endorsers than toward real human endorsers. The findings not only complement existing anthropomorphic marketing research but also assist enterprises in selecting appropriate anthropomorphic marketing strategies based on consumer tendencies.

Full Text

Research on the Persuasion Mechanism of Anthropomorphized Spokespersons: The Mediating Roles of Parasocial Interaction and Positive Emotions

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Abstract

Using anthropomorphic characters (such as anime characters and virtual idols) as brand endorsers is a common marketing strategy in advertising, yet few scholars have examined how consumers' anthropomorphic perceptions influence endorser persuasiveness. Previous research has distinguished between two types of anthropomorphic perception: systematic anthropomorphism, which treats anthropomorphized objects as individuals capable of social interaction, and heuristic anthropomorphism, which represents an automatically triggered implicit effect. Building on this dual-typology framework, this study investigates how consumer anthropomorphic tendencies affect the persuasiveness of different types of endorsers (human vs. anthropomorphized). Experimental data reveal that under the moderating effect of individual anthropomorphic tendencies, consumers' perceptions of parasocial interaction and positive emotions simultaneously influence advertising persuasiveness. Participants with low anthropomorphic tendencies reported significantly stronger parasocial interaction perceptions with human endorsers than with anthropomorphized endorsers, whereas participants with high anthropomorphic tendencies exhibited significantly more positive emotions toward anthropomorphized endorsers than toward human endorsers. These findings not only complement existing anthropomorphic marketing research but also provide guidance for companies to select appropriate anthropomorphic marketing strategies based on consumer predispositions.

Keywords: anthropomorphism; advertising spokesperson; parasocial interaction; positive emotions; persuasion

1. Introduction

President Xi Jinping' s report at the 19th National Congress emphasized "strengthening cultural confidence and promoting the flourishing development of socialist culture," with "advancing cultural undertakings and industries" as a key priority. In recent years, national policies have vigorously supported the development of cultural industries, particularly the animation sector, which has been designated as a key focus in both the 12th and 13th Five-Year Plans. Among animation industry derivatives, intellectual property (IP) from animated characters represents a significant profit source. However, China' s animation derivatives market remains dominated by toys, leaving

the commercial value of animation IP largely underdeveloped. In fact, since the 1980s, Chinese advertising has employed animated characters as endorsers (hereinafter "anthropomorphized spokespersons"), such as the Sun Wukong animation character in 1983-1984 advertisements for Shanghai Watch Factory's "Diamond" brand watches, and the cartoon figures symbolizing Chinese-German children used as brand mascots for Haier in 1985 (Zhang, 2011).

Previous research suggests that anthropomorphized spokespersons are more suitable for promoting low-involvement products—those that consumers consider relatively unimportant—such as the Duracell bunny, the Colgate beaver, or Tony the Tiger on Kellogg's cereal boxes (Bhutada et al., 2017). However, the global dissemination of advertisements featuring Japan's virtual singer "Hatsune Miku" has gradually challenged this conventional wisdom. This 16-year-old "girl" from the two-dimensional world has endorsed high-involvement products including Xiaomi smartphones, Toyota automobiles, and Louis Vuitton fashion. Similarly, China's virtual singer "Luo Tianyi" has gained acceptance among advertisers, endorsing multiple well-known brands such as KFC, Pechoin, and Bright Dairy in 2017 alone, demonstrating substantial commercial value.

These animated and cartoon characters in advertisements all represent anthropomorphic marketing strategies (Macinnis & Folkes, 2017). Prior studies indicate that anthropomorphizing brands and products facilitates easier comprehension of their underlying meanings (Aggarwal & McGill, 2007; Xie & Wang, 2017), generates perceptual fluency (Epley et al., 2007), elicits positive emotional experiences, and consequently enhances advertising effectiveness (Letheren et al., 2017).

Unlike typical anthropomorphized brands and products, virtual human characters more closely resemble real humans in appearance, more readily triggering anthropomorphic perceptions. Under such perceptions, virtual characters are endowed with uniquely human emotions, motivations, and intentions, becoming social entities (Wang et al., 2014). This enables anthropomorphized spokespersons, like human spokespersons, to imbue brands with symbolic meaning (McCracken, 1989). Consumers then construct and express self-concepts through purchasing these symbolically meaningful brands (Belk, 2013; Richins, 1994). The process of meaning transfer between advertising spokespersons and audiences closely resembles daily social interaction, hence termed "parasocial interaction" (Horton & Wohl, 1956).

Previous research demonstrates that parasocial interaction between media audiences and celebrities significantly influences celebrity persuasiveness (Choi & Rifon, 2007), as sustained parasocial interaction may generate fantasies of interacting with celebrities, leading audiences to follow celebrity updates as they would friends (Gong & Li, 2017; Hung, 2014). Do consumers develop similar parasocial interaction perceptions toward anthropomorphized spokespersons? This question concerns whether consumers perceive virtual characters in advertisements from a human perspective—that is, anthropomorphically. Research indicates that individual differences in anthropomorphic tendencies are ubiqui-

tous (Letheren et al., 2017; Özdem et al., 2017). Do these individual differences lead to varying persuasiveness between anthropomorphized and human spokesperson advertisements? Although existing research has addressed anthropomorphic marketing strategies and spokesperson persuasiveness (Aggarwal & McGill, 2007; Hoffner, 1996; Rubin et al., 1985), empirical examination of the relationship between consumer anthropomorphic perceptions and anthropomorphized spokespersons, and its impact on advertising persuasiveness, remains necessary.

In summary, this study examines the pathways and mechanisms underlying the persuasiveness of anthropomorphized spokesperson advertisements, addressing three research questions: (1) What factors influence advertising effectiveness in anthropomorphized spokesperson advertisements? (2) How do parasocial interaction perception and positive emotions mediate the relationship between anthropomorphized spokespersons and advertising effectiveness? (3) How do consumer anthropomorphic tendencies moderate the effectiveness of anthropomorphized spokesperson advertisements? The findings will guide commercial development efforts related to virtual character licensing.

2.1 Anthropomorphization of Spokespersons

Meaning transfer theory posits that each individual embodies a rich set of cultural symbolic meanings (such as class, status, gender, and race) (McCracken, 1989). For instance, a spokesperson who appears reliable may generate more positive attitudes, higher purchase intentions toward the advertised products and brands (Friedman & Friedman, 1979; Pornpitakpan, 2003; Silvera & Austad, 2004), while an attractive spokesperson may enhance advertising message effectiveness (Till & Busler, 2000), positively influencing brand recall, brand attitudes, and purchase intentions (Friedman & Friedman, 1979; Till & Busler, 2000). However, celebrities sometimes become associated with negative events or scandals, damaging corporate image (Till & Shimp, 1998; Tom et al., 1992) —a problem that virtual spokespersons avoid. Compared to humans, anthropomorphized characters are more adaptable, malleable, and controllable.

This study defines anthropomorphized spokespersons as virtual characters that are anthropomorphized, in contrast to human spokespersons. Previous research has referred to them as "brand characters," "spokes-characters," or "spokespeople." Early studies indicate that virtual spokespersons help establish emotional connections between consumers and brands (Callcott & Phillips, 1996). Cute cartoon characters can enhance purchase intentions (Callcott & Alvey, 1991), increase attention to advertisements and brands (Callcott & Phillips, 1996), and classic animated characters can evoke nostalgia and trust (Callcott & Alvey, 1991; Callcott & Phillips, 1996). Brand-specific spokesperson characters also serve as memory nodes for consumers, facilitating memory network construction and enhancing brand value (Folse et al., 2012, 2013; Garretson & Burton, 2005; Garretson & Niedrich, 2004). Consequently, increasing numbers of companies employ anthropomorphized spokespersons in advertising (Garretson &

Niedrich, 2004).

2.2.1 Dual-Process Model of Anthropomorphic Perception

Simple anthropomorphic cues lead people to consciously or unconsciously attribute human emotions to non-human objects, such as "smiling" brand logos, "slender" cola bottles, or cars with "cool expressions" (Aggarwal & McGill, 2007; Xie & Wang, 2017). However, anthropomorphic cues not only trigger heuristic anthropomorphic perception but also influence further systematic reasoning processes, generating social presence toward anthropomorphized characters (Wang et al., 2014). The richer the anthropomorphic cues, the stronger the social presence experienced (Araujo, 2018). Under social presence, people perceive anthropomorphized characters as "real people," feel closer to them, and sense co-presence with virtual interactive entities (Biocca et al., 2001).

Consequently, anthropomorphism research often employs the heuristic-systematic model (HSM) to explain this dual-process mechanism (Kim & Sundar, 2012). Based on dual-process theory, HSM posits two distinct processing systems: heuristic and systematic. These systems represent different levels of cognitive "effort" in information processing. The heuristic system operates unconsciously, incorporating biases and heuristics with minimal cognitive resource expenditure, whereas the systematic system requires mental effort and concentration for logical thinking and computation (Petty & Cacioppo, 1986). Similar to other dual-process models, HSM suggests that information processing differences stem from motivation and knowledge: when processing motivation is low (low involvement) or relevant knowledge is insufficient, individuals rely on heuristic pathways using peripheral cues (Petty & Cacioppo, 1986). Unlike other models, HSM assumes that systematic and heuristic processes operate both independently and interactively (Eagly & Chaiken, 1993).

2.2.2 Individual Tendency Toward Anthropomorphization

Individual anthropomorphic tendency refers to the predisposition to process information anthropomorphically (Epley et al., 2007; Waytz, Cacioppo, et al., 2010). Research links this tendency to the ability to perceive emotions such as happiness, sadness, anger, and fear in other entities (Demoulin et al., 2004; Waytz, Cacioppo, et al., 2010). By perceiving emotions in non-human entities and recognizing human characteristics, people infer mental states and attribute purposes and intentions to their behaviors (Waytz, Cacioppo, et al., 2010; Waytz, Gray, et al., 2010).

Epley and colleagues (2007) describe anthropomorphization as a process of inductive reasoning about non-human entities using human knowledge, comprising three stages: (1) anthropomorphic cues from non-human entities (e.g., cartoon characters) evoke experiential knowledge about humans, generating anthropomorphic mental perception; (2) this perception integrates with more rational judgments to produce bias-corrected evaluations; and (3) these evaluations sub-

sequently influence intentions and behaviors. Anthropomorphic bias correction is often insufficient, leaving judgments susceptible to anthropomorphic tendencies (Cacioppo et al., 1986; Eagly & Chaiken, 1993; Epley et al., 2007). Thus, individual differences in anthropomorphic processing may cause perceptual differences between human and anthropomorphized spokespersons. In this study, anthropomorphized spokespersons possess rich anthropomorphic cues that symbolize social interaction, potentially eliciting both heuristic and systematic anthropomorphic perceptions simultaneously.

2.3.1 Parasocial Interaction Experience

The concept of parasocial interaction originates from research on relationships between media figures and audiences (Horton & Wohl, 1956). Early studies found that people develop parasocial interaction experiences with familiar newscasters, radio hosts, and fictional television characters, forming social relationships, seeking guidance from these figures, and incorporating them into their social worlds as friends (Hoffner, 1996; Rubin et al., 1985). Despite recognizing the one-way nature of these interactions, audiences perceive them as intimate social exchanges (Horton & Wohl, 1956). Consequently, Gong and Li (2017) found that parasocial interaction between celebrities and audiences positively enhances celebrity advertising persuasiveness.

In advertising communication, media figures employ social interaction methods such as bodily addressing and gazing to trigger parasocial interaction experiences (Cummins & Cui, 2014; Hartmann & Goldhoorn, 2011). Similarly, anthropomorphized spokespersons create interaction sensations through eye contact or body language, activating schemas related to human interaction (Nass & Moon, 2000). These social interaction cues are termed "elicited agent knowledge," where "agent knowledge" refers to knowledge about humans, particularly about one' s own mental states (Epley et al., 2007). When receiving social interaction cues, people draw on past experiences to infer non-human objects' mental states (Meltzoff & Brooks, 2001). Functional magnetic resonance imaging (fMRI) confirms that viewing anthropomorphized virtual characters' expressions activates brain regions associated with interpersonal interaction (Schilbach et al., 2006), generating social presence (Lee, 2004).

Social presence theory is frequently applied in online education research, as it requires stimulating both self-presence (making students participants) and virtual instructor presence (transforming task completion into interactive experiences) (Dunlap & Lowenthal, 2013). Advertising communication also represents a persuasive, inductive learning context (Hoch & Ha, 1986), where audience social presence and interaction perception toward spokespersons can increase involvement and emotional arousal, positively influencing brand attitudes and behavioral intentions (Fortin & Dholakia, 2005). However, since parasocial interaction is based on audience experiences with media figures, anthropomorphized spokespersons must undergo anthropomorphic cognitive processing to be perceived as intentional "humans" (Waytz, Gray, et al., 2010).

Anthropomorphic tendency theory suggests that individuals with higher tendencies are more likely to understand non-human objects' motivations and intentions using human mental states (Waytz, Cacioppo, et al., 2010). High-anthropomorphic-tendency consumers may experience parasocial interaction from anthropomorphized spokespersons' virtual social cues despite their differences from real humans. Conversely, low-anthropomorphic-tendency consumers may be more sensitive to virtual cues, reducing their parasocial interaction experience and affecting spokesperson persuasiveness (hereinafter "advertising effectiveness"). Therefore, we propose:

Hypothesis 1: Consumers' parasocial interaction perception of spokesperson type (human/anthropomorphized) is moderated by anthropomorphic tendency. Specifically, low-anthropomorphic-tendency consumers experience stronger parasocial interaction with human (vs. anthropomorphized) spokespersons, while high-anthropomorphic-tendency consumers show no difference in parasocial interaction across spokesperson types.

Hypothesis 2: The interaction between anthropomorphic tendency and spokesperson type (human/anthropomorphized) influences advertising effectiveness through the mediation of parasocial interaction.

2.3.2 Positive Emotional Experience

As previously discussed, based on anthropomorphized spokespersons'social interaction cues, we hypothesize that consumers attribute uniquely human emotions, motivations, and intentions, perceiving them as social entities and developing parasocial interaction experiences. This anthropomorphic parasocial interaction requires logical reasoning, representing a systematic cognitive outcome (Chaiken et al., 1999).

Anthropomorphic perception also involves heuristic processing. Sometimes, simply encountering anthropomorphic cues on non-human objects unconsciously leads us to project human personality traits (Epley et al., 2007). Particularly when facing unknown entities, anthropomorphism facilitates easier comprehension of intrinsic meanings, satisfying needs to understand, predict, and control one' s environment, while generating a sense of ease and fluency (Labroo et al., 2008; Lee & Labroo, 2004).

This subjective experience of comprehension ease is termed processing fluency (Jacoby & Dallas, 1981). High processing fluency produces pleasant feelings during information processing (Winkielman et al., 2003). Implicit memory research offers an explanation: prior exposure creates implicit memory, facilitating smoother comprehension upon re-exposure and fostering more favorable attitudes (Seamon et al., 1995). During anthropomorphic processing, understanding human behavioral intentions is more familiar than understanding objects themselves, with implicit memory making anthropomorphized objects easier to comprehend.

Since anthropomorphism is considered unconscious (Kim & Sundar, 2012) or subconscious bias (Kennedy, 1992), people likely incorporate the positive experience of anthropomorphic fluency into target evaluations, enhancing assessments (Higgins, 1989). For example, product advertisements depicting items in human postures facilitate fluent recognition and comprehension of anthropomorphic physical features, generating positive emotions, stronger brand preference, and more favorable brand personality attributions (Delbaere et al., 2011). Similarly, destination advertisements using first-person anthropomorphic language (e.g., "Beijing Welcomes You") enhance fluent comprehension of persuasive content, eliciting positive emotions and favorable attitudes and behavioral intentions (Letheren et al., 2017).

In this study, anthropomorphized spokespersons closely resemble humans, suggesting consumers should fluently comprehend their meanings. However, differences remain, requiring anthropomorphic cognitive processing. High-anthropomorphic-tendency individuals are more adept at attending to others' mental states, making heuristic anthropomorphic processing easier and generating more positive emotional experiences (Epley et al., 2007; Letheren et al., 2017). Therefore, we propose:

Hypothesis 3: Consumers' positive emotions toward spokesperson type (human/anthropomorphized) are moderated by anthropomorphic tendency. Specifically, high-anthropomorphic-tendency consumers experience stronger positive emotions toward anthropomorphized (vs. human) spokespersons, while low-anthropomorphic-tendency consumers show no difference in positive emotions across spokesperson types.

Hypothesis 4: Positive emotions and parasocial interaction jointly mediate the effect of spokesperson type (human/anthropomorphized) on advertising effectiveness.

The theoretical framework of this study is illustrated in Figure 1 [Figure 1: see original paper].

3. Experimental Studies

Two experiments were conducted to test the hypotheses. Experiment 1 preliminarily examined how anthropomorphic tendency influences parasocial interaction perception across different spokesperson types. Experiment 2 built upon Experiment 1 by testing parasocial interaction and positive emotions as parallel mediators of the effects of anthropomorphic tendency, spokesperson type, and their interaction on advertising effectiveness.

3.1.1 Stimulus Design and Manipulation Check

Literature review revealed insufficient evidence for our hypotheses, prompting Experiment 1 to verify the moderating effect of individual anthropomorphic

tendency on anthropomorphized spokesperson advertising effectiveness. Researchers first identified real-world advertisements featuring both human and anthropomorphized endorsers for the same product, ultimately selecting "Nestlé Coffee Smooth Latte" as the experimental stimulus.

Through deconstruction of actual advertisements, two ad images were created: one with an anthropomorphized spokesperson (virtual idol) and one with a non-anthropomorphized spokesperson (human model). Both spokespersons held the product (bottled coffee) near their faces (see Appendix A).

Manipulation check: To verify differences between anthropomorphized and human spokespersons, a pretest was conducted with 26 participants, adapting Touré-Tillery and McGill' s (2015) methodology. Measures included: (1) Human perception assessed through five items: "I believe the spokesperson can think," "I believe the spokesperson can understand others' feelings," "I believe the spokesperson can distinguish right from wrong and tries to do the right thing," "I believe she can make plans and work toward goals," and "I believe she can control her desires, emotions, or impulses." (2) Spokesperson familiarity (1 = very unfamiliar, 7 = very familiar) to ensure human perception ratings were not confounded by familiarity.

Results indicated good scale validity (α = 0.83). No significant familiarity difference existed between spokesperson types (M_{anthropomorphized} = 3.406, M_{human} = 3.156, p = 0.478), ruling out familiarity confounds. The two ads effectively elicited different human perceptions, with human spokespersons rated significantly higher than anthropomorphized spokespersons (M_{anthropomorphized} = 3.656, M_{human} = 4.719, t(24) = -2.430, p = 0.018), confirming successful manipulation.

3.1.2 Experimental Procedure

Experiment 1 examined whether parasocial interaction perception differs across anthropomorphized (vs. non-anthropomorphized) spokespersons for consumers with varying anthropomorphic tendencies, testing Hypothesis 1. Sixty undergraduate and graduate students from a southern Chinese university participated (60% male, M_{age} = 24.017), randomly assigned to one of two conditions (n_{anthropomorphized} = 30, n_{human} = 30).

Participants first completed a pretest measuring individual differences in anthropomorphic tendency using Waytz, Cacioppo, and Epley' s (2010) scale, which assesses self-reported ability to perceive mental states in non-human animals through five items: "To what extent do you think ordinary fish have free will?""To what extent do you think cows have their own ideas when doing things?" "To what extent do you think cheetahs have emotional experiences?" "To what extent do you think general insects have their own thoughts?" and "To what extent do you think ordinary reptiles have their own consciousness?"

Participants were then randomly assigned to view either the anthropomorphized

or human spokesperson advertisement, followed by a posttest measuring parasocial interaction experience using three items from Hartmann and Goldhoorn' s (2011) scale: "She seems to be looking at me," "She seems to notice me," and "She seems to respond to me." All items were measured on 7-point Likert scales (1 = strongly disagree, 7 = strongly agree).

3.1.3 Data Analysis

Spokesperson type was dummy-coded (1 = human, 0 = anthropomorphized). Higher anthropomorphic tendency scores indicated stronger tendencies (α = 0.880, M = 3.917, SD = 1.441). Higher parasocial interaction scores indicated stronger perceptions (α = 0.906, M = 4.500, SD = 1.501).

SPSS with the Process plugin (Hayes, 2018) conducted Bootstrap analysis (5,000 samples, 95% confidence interval) to test the moderating effect of anthropomorphic tendency on the relationship between spokesperson type and parasocial interaction. The independent variable was spokesperson type (dummy-coded: anthropomorphized = 0, human = 1), anthropomorphic tendency served as the moderator, and parasocial interaction was the dependent variable.

Results showed a significant main effect of spokesperson type (β = 3.596, t(56) = 3.824, p = 0.000), indicating stronger parasocial interaction perception with human spokespersons. The main effect of anthropomorphic tendency was also significant (β = 0.886, t(56) = 5.334, p = 0.000). Crucially, the interaction between spokesperson type and anthropomorphic tendency was significant (β = -0.629, t(56) = -2.809, p = 0.007), with a confidence interval (LLCI = -1.078, ULCI = -0.180) excluding zero. The significant increase in R^2 after adding the interaction term ($p < 0.05$) confirmed the moderating effect, providing preliminary support for our hypothesis.

Table 1 presents the moderation results. Johnson-Neyman tests further calculated the region of significance and plotted the interaction (see Figure 2 [Figure 2: see original paper]) (Johnson & Neyman, 1936). The $p < 0.05$ threshold for the moderator (anthropomorphic tendency) occurred at 4.603, indicating that participants with tendencies below 4.603 experienced significantly stronger parasocial interaction with human versus anthropomorphized spokespersons, while those above 4.603 showed no significant difference across spokesperson types.

Experiment 1 confirmed the moderating effect of anthropomorphic tendency on the relationship between spokesperson type and parasocial interaction perception: low-tendency participants exhibited stronger parasocial interaction with human spokespersons, while high-tendency participants showed no difference (Hypothesis 1). Experiment 2 further examined whether parasocial interaction and positive emotions influence advertising persuasiveness.

3.2 Experiment 2: Parallel Mediation of Parasocial Interaction and Positive Emotions

Experiment 2 tested the parallel mediating roles of positive emotions and parasocial interaction in the effect of anthropomorphized spokespersons on advertising effectiveness. To enhance external validity, a different product category and spokesperson were used to rule out preferences for specific endorsers or products.

Similar to Experiment 1, real advertisements for "Lux Shampoo" served as stimuli. The two ads maintained similar spokesperson postures and eye contact while keeping background images and brands consistent (see Appendix B).

Manipulation check: Following Experiment 1' s procedure, 50 participants completed a pretest. No familiarity difference existed (M_{anthropomorphized} = 1.833, M_{human} = 1.667, p = 0.083), ruling out familiarity confounds. The human perception scale demonstrated good validity (α = 0.83), with human spokespersons rated significantly higher than anthropomorphized spokespersons (M_{anthropomorphized} = 2.830, M_{human} = 6.330, t(36) = -10.247, p = 0.001), confirming effective manipulation.

Experiment 2 employed a single-factor between-subjects design (spokesperson type: anthropomorphized vs. human), recruiting 135 participants through a major online survey platform. After excluding seven incomplete responses, the final sample comprised N = 128 participants (27.34% male, M_{age} = 26.55). To assess positive emotions without baseline mood interference, a pretest measured baseline affect using the Chinese version of Watson et al.' s (1988) Positive and Negative Affect Scale (PANAS), adapted by Qiu et al. (2008). The scale comprises nine positive adjectives (e.g., active, enthusiastic) and nine negative adjectives (e.g., ashamed, sad), rated on 7-point scales (1 = very slightly, 7 = extremely) for experiences during the previous week, demonstrating good criterion validity for life satisfaction and coping styles (Qiu et al., 2008).

The procedure mirrored Experiment 1: participants completed pretests measuring anthropomorphic tendency and baseline affect, then were randomly assigned to view either the anthropomorphized or human spokesperson ad (n_{anthropomorphized} = 65, n_{human} = 63). Posttests assessed: (1) parasocial interaction perception, (2) positive emotions using Tamir and Robinson' s (2007) three-item scale (happy, pleased, enthusiastic), and (3) advertising effectiveness using Bergkvist and Rossiter' s (2009) two-item scale: "I like the advertised brand" and "Given the opportunity, I would choose the advertised product among similar products." All items used 7-point Likert scales (1 = strongly disagree, 7 = strongly agree).

3.2.3 Data Analysis

Spokesperson type was dummy-coded (1 = anthropomorphized, 0 = human). Baseline positive affect (M = 5.393, SD = 0.863) and negative affect (M = 2.532, SD = 1.261) showed no significant differences between groups (positive:

M_{anthropomorphized} = 3.938, M_{human} = 3.847, p = 0.554; negative: M_{anthropomorphized} = 2.566, M_{human} = 2.497, p = 0.760). Higher anthropomorphic tendency scores indicated stronger tendencies (α = 0.887, M = 5.009, SD = 1.212). Higher parasocial interaction scores indicated stronger perceptions (α = 0.787, M = 5.367, SD = 1.09). Higher positive emotion scores indicated more positive affect (α = 0.858, M = 4.945, SD = 1.045). Advertising effectiveness was indexed by the mean of brand attitude and purchase intention (α = 0.871, M = 5.264, SD = 1.141).

Hypothesis testing followed Zhao et al.' s (2010) mediation analysis procedure and Hayes' s (2018) method for parallel multiple mediator models, using 5,000 Bootstrap samples with 95% confidence intervals. The independent variable was spokesperson type (dummy-coded: anthropomorphized = 0, human = 1), anthropomorphic tendency was the moderator, parasocial interaction and positive emotions were parallel mediators, and advertising effectiveness was the dependent variable.

(1) Moderation Effects

1) Moderating Effect of Anthropomorphic Tendency on Parasocial Interaction Bootstrap analysis (see Table 2) revealed a significant main effect of spokesperson type (β = 2.111, t(124) = 2.872, p = 0.005) and anthropomorphic tendency (β = 1.048, t(124) = 4.358, p = 0.000). The interaction was significant (β = -0.374, t(124) = -2.632, p = 0.010), with a confidence interval [-0.655, -0.093] excluding zero and significant R^2 increase (p = 0.010), replicating Experiment 1' s findings.

Johnson-Neyman tests (see Figure 3 [Figure 3: see original paper]) identified the $p < 0.05$ threshold at 4.736. Participants with tendencies below 4.736 experienced stronger parasocial interaction with human versus anthropomorphized spokespersons, while those above 4.736 showed no significant difference, supporting Hypothesis 1.

2) Moderating Effect of Anthropomorphic Tendency on Positive Emotions Analysis (see Table 3) showed a marginally significant main effect of spokesperson type (β = 1.153, t(124) = 1.762, p = 0.081) and a significant main effect of anthropomorphic tendency (β = 0.970, t(124) = 4.529, p = 0.000). The interaction was significant (β = -0.318, t(124) = -2.517, p = 0.013), with confidence interval [-0.569, -0.068] excluding zero and significant R^2 increase (p = 0.013).

Johnson-Neyman tests (see Figure 4 [Figure 4: see original paper]) identified the $p < 0.05$ threshold at 4.605. Participants with tendencies above 4.605 experienced stronger positive emotions toward anthropomorphized versus human spokespersons, while those below 4.605 showed no significant difference, supporting Hypothesis 3.

(2) Moderated Mediation Effects

1) Moderated Mediation Through Parasocial Interaction The index of moderated mediation for the path through parasocial interaction was -0.254, significantly different from zero with a 95% confidence interval [-0.476, -0.016], indicating that parasocial interaction mediates the interactive effect of anthropomorphic tendency and spokesperson type on advertising effectiveness.

Analyzing low (M-1SD = 3.797), medium (M = 5.009), and high (M+1SD = 6.221) anthropomorphic tendency levels (see Table 4), parasocial interaction significantly influenced advertising effectiveness for anthropomorphized spokespersons among low-tendency participants (β = 0.470, 95% CI [0.027, 0.860]), but not among medium-tendency (β = 0.162, CI [-0.067, 0.379]) or high-tendency participants (β = -0.147, CI [-0.424, 0.129]), supporting Hypothesis 2.

2) Moderated Mediation Through Positive Emotions The moderated mediation index for positive emotions was -0.090, significantly different from zero with 95% confidence interval [-0.184, -0.009], indicating that positive emotions also mediate the interactive effect.

Analysis across tendency levels (see Table 5) revealed that positive emotions significantly influenced advertising effectiveness for anthropomorphized spokespersons among high-tendency (β = -0.235, CI [-0.461, -0.045]) and medium-tendency participants (β = -0.125, CI [-0.292, -0.016]), but not among low-tendency participants (β = -0.016, CI [-0.184, 0.103]).

(3) Parallel Multiple Mediation Model

Direct effects (see Table 6) showed significant effects of spokesperson type (β = -0.764, t(107) = -4.717, p = 0.000), positive emotions (β = 0.290, t(107) = 3.951, p = 0.000), and parasocial interaction (β = 0.283, t(107) = 4.093, p = 0.000) on advertising effectiveness.

Figure 5 [Figure 5: see original paper] illustrates the parallel mediation results. With two mediators, the model contains three specific indirect effects requiring three equations (Hayes, 2018). The model can be expressed as:

$M_1 = -0.374x + (-0.263)$
$M_2 = -0.318x + 0.724$
$y = 0.255x + 0.680M_1 + 0.284M_2 + (-0.169) = -0.090x + 0.196$

The total indirect effect is $a_1b_1 + a_2b_2 = [-0.374(0.680)] + [-0.318(0.284)] = -0.345$, and the total effect is c' $+ a_1b_1 + a_2b_2 = 0.255 - 0.345 = -0.090$.

Experiment 2 replicated and extended Experiment 1' s findings: (1) confirming the moderating effect of anthropomorphic tendency on parasocial interaction (Hypothesis 1); (2) demonstrating parasocial interaction' s mediating role (Hypothesis 2); (3) confirming the moderating effect on positive emotions (Hypothesis 3); and (4) establishing the parallel mediating roles of positive emotions

and parasocial interaction (Hypothesis 4). In anthropomorphized spokesperson advertisements, anthropomorphic tendency positively influenced positive emotions, demonstrating the mediating role of positive emotions in spokesperson persuasiveness. For high-tendency consumers, anthropomorphized spokespersons generated more positive emotions and advertising effectiveness, while for low-tendency consumers, effects on positive emotions were non-significant. Combined effects of parasocial interaction and positive emotions created differences in advertising effectiveness across consumer tendency levels.

4.1 Theoretical Contributions

Previous anthropomorphic perception research has focused on design elements (Aggarwal & McGill, 2007; Delbaere et al., 2011; Feng et al., 2016; Wang et al., 2014) or contextual manipulations (Letheren et al., 2017; Liu & Wang, 2017; Xu et al., 2017). Studies comparing anthropomorphized and human spokespersons have examined advertising creativity (Heiser et al., 2008), trust (Touré-Tillery & McGill, 2015), and advertising involvement (Bhutada et al., 2017). This study, however, examines how heuristic and systematic anthropomorphic perceptions influence anthropomorphized spokesperson effectiveness. Its core value lies in demonstrating the relevance of individual anthropomorphic tendency differences to spokesperson persuasiveness, enabling further anthropomorphic marketing research. Theoretical contributions manifest in two aspects:

First, this study validates the impact of different spokesperson types on consumer parasocial interaction. Although literature has explored relationships between spokesperson persuasiveness and parasocial interaction (Beege et al., 2019; Escalas & Bettman, 2017; Hung, 2014; Jin, 2018), few have examined anthropomorphized spokespersons' effects on parasocial interaction perception. Our findings indicate that anthropomorphized spokespersons can generate parasocial interaction perceptions similar to human spokespersons among high-tendency consumers, producing comparable advertising effects. This provides new insights into understanding parasocial interaction between anthropomorphized spokespersons and consumers.

Second, this study specifically examines moderators influencing consumer spokesperson preferences, expanding anthropomorphism and spokesperson research. While previous research found that anthropomorphic tendency differences affect advertising effectiveness through positive emotions (Letheren et al., 2017), this study demonstrates that positive emotions and parasocial interaction jointly influence advertising effectiveness, enriching and deepening anthropomorphic marketing research. Thus, this study establishes a foundation for anthropomorphized spokesperson research while broadening the theoretical scope of anthropomorphic marketing.

4.2 Marketing Implications

To gain competitive advantage and enhance brand influence, companies often invest heavily in brand endorsers. Compared to real celebrities, anthropomorphized spokespersons offer budgetary advantages—a key factor in their adoption (Pringle & Binet, 2005)—and avoid negative impacts from celebrity scandals (Till & Shimp, 1998; Um & Kim, 2016). However, can these novel spokespersons meet marketing needs? This study offers three recommendations:

First, differences in parasocial interaction perception across spokesperson types correlate with individual anthropomorphic tendencies. Since human spokespersons generally elicit stronger parasocial interaction, indiscriminate use of anthropomorphized spokespersons may yield suboptimal results. Companies must not overlook target customers' individual predispositions. During user research or big data profiling, consumer anthropomorphic tendency information should be tagged. These preferences may be obscured by more salient demographic labels such as gender, age, and occupation. Only by focusing on individual preferences can marketing strategies achieve optimal effectiveness.

Second, whether using real celebrities or anthropomorphized characters, companies should enhance consumers' parasocial interaction perception. Advertising design should incorporate elements that generate parasocial interaction, such as spokesperson body language or eye contact that trigger these experiences (Cummins & Cui, 2014; Hartmann & Goldhoorn, 2011). Advertisements should emphasize interaction between spokespersons and consumers through eye contact, dialogue, etc.

Finally, heuristic anthropomorphism generates implicit effects. Companies should therefore emphasize various anthropomorphic cues in advertising design, such as logos and product design, to facilitate heuristic anthropomorphic cognition and influence advertising effectiveness through positive emotions.

4.3 Limitations and Future Research

Despite its theoretical contributions, this study has limitations warranting future research. First, although real anthropomorphized spokesperson advertisements were compared with human ads, these characters—while more humanlike than products with "human" features (e.g., smiles, eyes, speech)—remain distinguishable from humans. Extremely anthropomorphic computer animation exists, such as Japanese artist-created Saya, Instagram influencer "Li Miquela," and "Shudu Gram," which are nearly indistinguishable from humans. Based on Mori et al.' s (2012) "uncanny valley" theory, increasing anthropomorphism may generate discomfort. Future research could examine how this discomfort affects advertising persuasiveness across varying anthropomorphism levels.

Additionally, this study's participants were primarily university students. Previous research indicates an inverse relationship between age and anthropomorphic tendency (Epley et al., 2007; Letheren et al., 2016). Insufficient spokesperson

knowledge may bias heuristic mental state inferences. Expanding the age range could potentially attenuate results.

Finally, this study emphasized differences between anthropomorphized characters and humans, yet anthropomorphized characters may differ on other spokesperson characteristics, such as being cuter, more creative, or more technologically advanced. Based on the elaboration likelihood model, these factors may influence advertising effectiveness through peripheral routes (Petty & Cacioppo, 1986). Future research could further explore personality differences between anthropomorphized and human spokespersons and product-spokesperson matching issues.

References

[1] Feng, W. T., Wang, T., Wei, H., & Zhou, N. (2016). Loneliness makes me fall in love with you: The influence of product display on lonely individual' s product preference. *Acta Psychologica Sinica*, 48(4), 398-409.

[2] Li, W., Yan, Q., Miao, M., He, F., & Jiang, Y. S. (2019). Image congruence and visual object structure of anthropomorphic advertisement—eye movement research based on self-construct. *Journal of Marketing Science*, 15(2), 116-131.

[3] Liu, D., & Wang, H. Z. (2017). Negative emotion effects of anthropomorphic advertising: Mediating role of guilt. *Acta Psychologica Sinica*, 49(1), 128-137.

[4] Li, S. H., Zhang, H. X., Wang, X. F., & Fu, G. Q. (2017). The effect of loneliness on anthropomorphized product under different information frameworks. *Journal of Marketing Science*, 13(4), 1-17.

[5] Qiu, L., Zheng, X., & Wang, Y. F. (2008). Revision of the Positive Affect and Negative Affect Scale. *Chinese Journal of Applied Psychology*, 14(3), 5-6.

[6] Wang, T., Xie, Z. P., & Cui, N. (2014). Have a good chat with the brand: The impact of personified brand communication on consumer brand attitude. *Acta Psychologica Sinica*, 46(7), 987-999.

[7] Wang, T., Xie, Z. P., Zhou, L., & Zhou, N. (2014). Brand as person? A grounded theory study on brand personification. *Journal of Marketing Science*, 10(1), 1-20.

[8] Xie, Z. P., & Wang, T. (2017). Is "He" frowning on Me? The impact of facial expression on customer attitude. *Acta Psychologica Sinica*, 49(5), 680-691.

[9] Wu, Y. H., & Jiang, J. (2018). Partner or servant: How anthropomorphized brand role releases the negative effect of social exclusion. *Journal of Marketing Science*, 14(1), 44-57.

[10] Xu, L. Y., Yu, F., Wu, J. H., Han, T. T., & Zhao, L. (2017). Anthropomorphism: Antecedents and consequences. *Advances in Psychological Science*, 25(11), 1942-1954.

[11] Zhang, R. J. (2011). The history and current situation of animation advertising communication in China. *Journal of Shandong University of Technology (Social Sciences)*, 27(5), 79-83.

[12] Xi Jinping proposed that strengthen cultural self-confidence and promote the prosperity and prosperity of socialist culture. (2017-10-18). Retrieved 2021-09-06 from http://www.gov.cn/zhuanti/2017-10/18/content_{5232653}.htm

[13] 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.

[14] 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.

[15] Araujo, T. (2018). Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions. *Computers in Human Behavior*, 85, 183-189.

[16] Beege, M., Nebel, S., Schneider, S., & Rey, G. D. (2019). Social entities in educational videos: Combining the effects of addressing and professionalism. *Computers in Human Behavior*, 93, 40-52.

[17] Belk, R. W. (2013). Extended self in a digital world. *Journal of Consumer Research*, 40(3), 477-500.

[18] Bergkvist, L., & Rossiter, J. R. (2009). Tailor-made single-item measures of doubly concrete constructs. *International Journal of Advertising*, 28(4), 607-621.

[19] Bhutada, N. S., Rollins, B. L., & Perri, M. (2017). Impact of animated spokes-characters in print direct-to-consumer prescription drug advertising: An elaboration likelihood model approach. *Health Communication*, 32(4), 391-400.

[20] Biocca, F., Harms, C., & Gregg, J. (2001). The networked minds measure of social presence: Pilot test of the factor structure and concurrent validity. In *4th annual international workshop on presence*, Philadelphia, PA.

[21] Cacioppo, J. T., Petty, R. E., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*, 51(5), 1032-1043.

[22] Callcott, M. F., & Alvey, P. A. (1991). Toons sell···and sometimes they don' t: An advertising spokes-character typology and exploratory study. In *Proceedings of the 1991 Conference of the American Academy of Advertising* (pp. 43-52). New York: D' Arcy Masius Benton and Bowles.

[23] Callcott, M. F., & Phillips, B. J. (1996). Observations: Elves make good cookies: Creating likable spokes-character advertising. *Journal of Advertising Research*, 36(5), 73-78.

[24] Chaiken, S., Chen, S., & Chaiken, S. (1999). *Dual-process theories in social psychology*. Guilford Press.

[25] Choi, S. M., & Rifon, N. J. (2007). Who is the celebrity in advertising? Understanding dimensions of celebrity images. *Journal of Popular Culture*, 40(2), 304-323.

[26] Cummins, R. G., & Cui, B. (2014). Reconceptualizing address in television programming: The effect of address and affective empathy on viewer experience of parasocial interaction. *Journal of Communication*, 64(4), 661-680.

[27] Delbaere, M., McQuarrie, E. F., & Phillips, B. J. (2011). Personification in advertising. *Journal of Advertising*, 40(1), 121-130.

[28] Demoulin, S., Leyens, J. P., Paladino, M. P., Rodriguez-Torres, R., Rodriguez-Perez, A., & Dovidio, J. F. (2004). Dimensions of "uniquely" and "non-uniquely" human emotions. *Cognition and Emotion*, 18(1), 71-96.

[29] Dunlap, J. C., & Lowenthal, P. R. (2013). What was your best learning experience? Our story about using stories to solve instructional problems. *International Journal of Teaching and Learning in Higher Education*, 25(2), 269-274.

[30] Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers.

[31] Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, 114(4), 864-886.

[32] Escalas, J. E., & Bettman, J. R. (2017). Connecting with celebrities: How consumers appropriate celebrity meanings for a sense of belonging. *Journal of Advertising*, 46(2), 297-308.

[33] 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.

[34] Folse, J. A. G., Netemeyer, R. G., & Burton, S. (2012). Spokescharacters. *Journal of Advertising*, 41(1), 17-32.

[35] Fortin, D. R., & Dholakia, R. R. (2005). Interactivity and vividness effects on social presence and involvement with a web-based advertisement. *Journal of Business Research*, 58, 387-396.

[36] Friedman, H. H., & Friedman, L. (1979). Endorser effectiveness by product type. *Journal of Advertising Research*, 19(5), 63-71.

[37] Garretson, J. A., & Burton, S. (2005). The role of spokescharacters as advertisement and package cues in integrated marketing communications. *Journal of Marketing*, 69(4), 118-132.

[38] Garretson, J. A., & Niedrich, R. W. (2004). Spokes-characters: Creating character trust and positive brand attitudes. *Journal of Advertising*, 33(2), 25-36.

[39] Gong, W., & Li, X. (2017). Engaging fans on microblog: The synthetic influence of parasocial interaction and source characteristics on celebrity endorsement. *Psychology and Marketing*, 34(7), 720-732.

[40] Hartmann, T., & Goldhoorn, C. (2011). Horton and Wohl revisited: Exploring viewers' experience of parasocial interaction. *Journal of Communication*, 61(6), 1104-1121.

[41] Hayes, A. F., Preacher, K. J., & Myers, T. A. (2011). *The sourcebook for political communication research: Methods, measures, and analytical techniques.*

[42] Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: Methodology in the social sciences* (2nd ed.). Guilford Press.

[43] Heiser, R. S., Sierra, J. J., & Torres, I. M. (2008). Creativity via cartoon spokespeople in print ads: Capitalizing on the distinctiveness effect. *Journal of Advertising*, 37(4), 75-84.

[44] Higgins, E. T. (1989). *Unintended thought.* Guilford Press.

[45] Hoch, S. J., & Ha, Y. W. (1986). Consumer learning: Advertising and the ambiguity of product experience. *Journal of Consumer Research*, 13(2), 221-233.

[46] Hoffner, C. (1996). Children' s wishful identification and parasocial interaction with favorite television characters. *Journal of Broadcasting and Electronic Media*, 40(3), 389-402.

[47] Horton, D., & Wohl, R. R. (1956). Mass communication and para-social interaction. *Psychiatry*, 19(3), 215-229.

[48] Hung, K. (2014). Why celebrity sells: A dual entertainment path model of brand endorsement. *Journal of Advertising*, 43(2), 155-166.

[49] Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General*, 110(3), 306-340.

[50] Jin, S. V. (2018). "Celebrity 2.0 and beyond!" Effects of Facebook profile sources on social networking advertising. *Computers in Human Behavior*, 79, 154-168.

[51] Johnson, P. O., & Neyman, J. (1936). *Statistical research memoirs* (Vol. 1, pp. 57-93). University of London.

[52] Kennedy, J. S. (1992). *The new anthropomorphism.* Cambridge University Press.

[53] Kim, Y., & Sundar, S. S. (2012). Anthropomorphism of computers: Is it mindful or mindless? *Computers in Human Behavior*, 28(1), 241-250.

[54] Labroo, A. A., Dhar, R., & Schwarz, N. (2008). Of frog wines and frowning watches: Semantic priming, perceptual fluency, and brand evaluation. *Journal*

of Consumer Research, 34(6), 819-831.

[55] Lee, A. Y., & Labroo, A. A. (2004). The effect of conceptual and perceptual fluency on brand evaluation. *Journal of Marketing Research*, 41(2), 151-165.

[56] Lee, K. M. (2004). Presence, explicated. *Communication Theory*, 14(1), 27-50.

[57] Letheren, K., Kuhn, K. L., Lings, I., & Pope, N. K. L. (2016). Individual difference factors related to anthropomorphic tendency. *European Journal of Marketing*, 50(5/6), 973-1002.

[58] Letheren, K., Martin, B. A. S., & Jin, H. S. (2017). Effects of personification and anthropomorphic tendency on destination attitude and travel intentions. *Tourism Management*, 62, 65-75.

[59] 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.

[60] McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of Consumer Research*, 16(3), 310-321.

[61] Meltzoff, A. N., & Brooks, R. (2001). "Like me" as a building block for understanding other minds: Bodily acts, attention, and intention. In *Intentions and intentionality: Foundations of social cognition* (pp. 171-191).

[62] Mori, M., MacDorman, K., & Kageki, N. (2012). The uncanny valley [From the field]. *IEEE Robotics and Automation Magazine*, 19(2), 98-100.

[63] Nass, C., & Moon, Y. (2000). Machines and mindlessness: Social responses to computers. *Journal of Social Issues*, 56(1), 81-103.

[64] Özdem, C., Wiese, E., Wykowska, A., Müller, H., Brass, M., & Van Overwalle, F. (2017). Believing androids—fMRI activation in the right temporo-parietal junction is modulated by ascribing intentions to non-human agents. *Social Neuroscience*, 12(5), 582-593.

[65] Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, 19, 123-205.

[66] Pornpitakpan, C. (2003). Validation of the celebrity endorsers' credibility scale: Evidence from Asians. *Journal of Marketing Management*, 19(1), 179-195.

[67] Pringle, H., & Binet, L. (2005). How marketers can use celebrities to sell more effectively. *Journal of Consumer Behaviour*, 4(3), 201-214.

[68] Richins, M. L. (1994). Special possessions and the expression of material values. *Journal of Consumer Research*, 21(3), 522-533.

[69] Rubin, A. M., Perse, E. M., & Powell, R. A. (1985). Loneliness, parasocial interaction, and local television news viewing. *Human Communication Research*,

12(2), 155-180.

[70] Schilbach, L., Wohlschlaeger, A. M., Kraemer, N. C., Newen, A., Shah, N. J., Fink, G. R., & Vogeley, K. (2006). Being with virtual others: Neural correlates of social interaction. *Neuropsychologia*, 44(5), 718-730.

[71] Seamon, J. G., Williams, P. C., Crowley, M. J., Kim, I. J., Langer, S. A., Orne, P. J., & Wishengrad, D. L. (1995). The mere exposure effect is based on implicit memory: Effects of stimulus type, encoding conditions, and number of exposures on recognition and affect judgments. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 21(3), 711-721.

[72] Silvera, D. H., & Austad, B. (2004). Factors predicting the effectiveness of celebrity endorsement advertisements. *European Journal of Marketing*, 38(11/12), 1509-1526.

[73] Tamir, M., & Robinson, M. D. (2007). The happy spotlight: Positive mood and selective attention to rewarding information. *Personality and Social Psychology Bulletin*, 33(8), 1124-1136.

[74] Till, B. D., & Busler, M. (2000). The match-up hypothesis: Physical attractiveness, expertise, and the role of fit on brand attitude, purchase intent and brand beliefs. *Journal of Advertising*, 29(3), 1-13.

[75] Till, B. D., & Shimp, T. A. (1998). Endorsers in advertising: The case of negative celebrity information. *Journal of Advertising*, 27(1), 67-82.

[76] Tom, G., Clark, R., Elmer, L., Grech, E., Masetti, J., & Sandhar, H. (1992). The use of created versus celebrity spokespersons in advertisements. *Journal of Consumer Marketing*, 9(4), 45-51.

[77] 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.

[78] Um, N. H., & Kim, S. (2016). Determinants for effects of celebrity negative information: When to terminate a relationship with a celebrity endorser in trouble? *Psychology and Marketing*, 33(10), 864-878.

[79] Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.

[80] Waytz, A., Cacioppo, J., & Epley, N. (2010). Who sees human? *Perspectives on Psychological Science*, 5(3), 219-232.

[81] Waytz, A., Cacioppo, J., & Epley, N. (2010). Causes and consequences of mind perception. *Trends in Cognitive Sciences*, 14(8), 383-388.

[82] Winkielman, P., Schwarz, N., Fazendeiro, T. A., & Reber, R. (2003). The psychology of evaluation: Affective processes in cognition and emotion. In *The psychology of evaluation* (pp. 189-217). Lawrence Erlbaum Associates.

[83] Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197-206.

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