

The role of brand anthropomorphism in building brand attachment: The experiment research on beverage brands

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ABSTRACT

The concept of anthropomorphism has been described as a psychological process in which people perceive inanimate agents as humanlike. In the branding context, this approach has been considered as an effective positioning strategy to enhance consumer-brand interactions and create robust brand attachment, which refers to the strength of the bond connecting the brand with the self. Nevertheless, up to date, there are only a few empirical publications studying how and when anthropomorphism affects brand attachment. Filling the mentioned gap, on the basis of a three-factor theory of anthropomorphism (Epley, Waytz, & Cacioppo, 2007), and attachment theory (Bowlby, 1969), the paper provided an underlying mechanism that clarified the intimate relationship between brand anthropomorphism and consumers' emotional attachment to such brands. The experiment applied in the context of healthy drink brands was carried out to test the hypothesis of the research model. The nonprobability design was adopted, and the sample size was determined in terms of similar previous studies which showed reliable and valid findings. Data was collected from 201 participants, and the Partial Least Squares technique was applied for statistical analysis. The study found that users tend to show greater brand attachment when they are exposed to an anthropomorphic juice brand (vs. a non-anthropomorphic one). The exploratory findings further highlighted the essential role of self-efficacy, self-esteem, sense of belonging, and psychological comfort, that mediated the effects of brand anthropomorphism on brand attachment. The results from this research contribute to understanding the anthropomorphism literature and provide valuable insights for marketing practices in the beverage industry.

1. Introduction

Research on anthropomorphism has increasingly attracted much attention from academicians and practitioners (Zhang, Li, Ye, Qin, & Zhong, 2020). Anthropomorphism refers to the natural human tendency in which people perceive inanimate agents as humanlike (Ding, Lee, Legendre, & Madera, 2022). For instance, people sometimes call their familiar objects (e.g., cars or teddy bears) by names and see them as close friends (Huang, Zhou, Ye, & Guo, 2020). By facilitating social human-nonhuman interactions, anthropomorphism can meet two fundamental human motivations: the desire for social connection and the wish to influence and interpret the surrounding environment (Blut, Wang, Wunderlich, & Brock, 2021).

Anthropomorphism is commonly employed in marketing (Ha, Nguyen, & Le, 2022). Marketers strive to design products imbued with humanlike features (e.g., M&M chocolate) or utilize first-person narration (e.g., I am a Superman or a spokesperson) to persuade consumers to interact with such offerings (Han, Baek, Yoon, & Kim, 2019). Many scholars stated anthropomorphic perception drives consumers to exhibit more favorable attitudes toward products, thereby resulting in higher loyalty to them. However, several researchers argued that applying anthropomorphism can lead to both positive and negative effects on customers' attitudes and behavior (Chi, Denton, & Gursoy, 2020). As the uncanny valley theory predicted, consumers might have different emotional experiences when they see a product featuring human qualities. The more inanimate objects appear to resemble human beings, and the more people are likely to exhibit positive emotions toward them. This positive feeling rises to a point above which people perceive that anthropomorphic objects become weird or creepy. Then, their sentiment toward such entities falls markedly. People's positive emotions grow again when anthropomorphic objects are almost lifelike (Chi et al., 2020; Murphy, Gretzel, & Pesonen, 2019).

The extant literature reveals that anthropomorphizing brands is potentially considered an effective approach to promote brand attachment, which refers to "the strength of the bond connecting the brand with the self" (Park, Macinnis, Priester, Eisingerich, & Iacobucci, 2010, p. 02). Nevertheless, up to date, there are just a few empirical papers studying how and when anthropomorphism affects brand attachment (Ma, Tu, Zhou, & Niu, 2023). To the best of our knowledge, no study thus far has explored the mediating paths of this correlation via psychological factors such as self-efficacy, self-esteem, sense of belonging, and comfort. Filling the mentioned research gaps, our study aims to provide a comprehensive understanding of the relationship between brand anthropomorphism and brand attachment through relevant mediators.

Referring to Epley et al.'s (2007) three-factor theory and attachment theory (Bowlby, 1969), the study theorized that anthropomorphic brands could strengthen consumers' self-efficacy, self-esteem, sense of belonging, and psychological comfort, ultimately, emotional attachment to the brand. The proposed framework will be experimentally tested under the context of healthy juice brands. The nonprobability design was adopted, and the sample size was determined in terms of similar previous studies which showed reliable and valid findings (Hair, Risher, Sarstedt, & Ringle, 2019). Data from online surveys of 201 participants were analyzed using the Partial Least Squares technique. The findings promise to offer several theoretical and managerial contributions to the given research area.

In this study, the proposed frameworks will be experimentally tested in the context of healthy and energy drink brands. The beverage industry will be selected for this study because of two reasons. First, scholars frequently use beverage bottles or advertisements of branded drink brands as stimulus materials to manipulate brand anthropomorphism (Aggarwal & McGill, 2007; Golossenko, Pillai, & Aroea, 2020; MacInnis & Folkes, 2017; Puzakova & Kwak, 2017). Second, it is quite common to execute anthropomorphism in the context of real-world brands. For instance, Suntory Natchan Orange is a fruit juice brand produced by Suntory Beverage and Food Ltd, and OKF Manuka Honey Lemonade is a branded product of Overseas Korea Food, a leading multi-beverage manufacturing company. Both firms seem to specialize in products packaging with human faces.

The rest of the study is structured as follows. Theories and concepts related to brand anthropomorphism and brand attachment are presented in Section 2 - Theoretical basis. The experiment research design is exhibited in Section 3 - Research Method. Data analysis, results, and discussion are shown in Section 4 - Research results. Finally, the paper is concluded in Section 5 - Conclusion.

2. Theoretical basis

2.1. Relevant theories

The paper suggested a mediation mechanism that explicitly explains the effects of anthropomorphic brands on emotional brand attachment via relevant psychological factors. This research framework was built on a combination of a three-factor theory of anthropomorphism (Epley et al., 2007), and attachment theory (Bowlby, 1969). According to Epley et al.'s (2007) theory, it is logical to expect that brand anthropomorphism could activate psychological drivers, consisting of consumers' self-efficacy, self-esteem, sense of belonging, and comfort. Building on attachment theory, these factors exactly result in consumers' emotional attachment to humanlike brands.

Referring to Epley et al.'s (2007) theory, anthropomorphism is mainly formed by cognitive factors that activate and apply knowledge about humans (i.e., self-concept) when inferring about inanimate objects (Epley et al., 2007). This theory also emphasizes the role of sociality motivation and effecting motivation as determinants of anthropomorphism (Blut et al., 2021). Sociality refers to the aspiration to build social relationships with other humans. Effectance entails the ambition to effectively interact with the outside world and the need to accurately comprehend and forecast the behavior of a nonhuman agent (Zhang et al., 2020). Collectively, anthropomorphism should be reinforced as if high sociality motivation and effecting motivation (Aggarwal & McGill, 2007).

Applying Epley et al.'s (2007) theory in our context, there is a consensus that humanizing a brand might enhance the brand's utilities that entice the self, enable the self, and enrich the self. By applying the knowledge of human beings to an anthropomorphized brand, people see themselves in such a brand. Once the brand "fits" consumers' self-concept, it entices the self by producing a sense of comfort to consumers (Aaker, 1999; Sirgy, 1982). As to the effecting motivation tenet, humanized brands can enable the self by promoting a sense of self-efficacy, power, and competence (Park, Eisingerich, & Park, 2013). Derived from the social motivation tenet, these brands possibly perform utilities that enrich the self by boosting social approval and a sense of belonging.

Attachment theory was initially introduced by Bowlby (1969) and has been widely applied in marketing and branding (Sidlauskiene, Joye, & Auruskeviciene, 2023). This theory was originally derived from investigating the attachment between infants and their parents or main caregivers. The children will develop an intimate connection with their caregivers when they believe that the target caregivers always provide necessary resources whenever they need them (Sarkar, Sarkar, & Bhatt, 2019; Thomson, MacInnis, & Whan Park, 2005). Particularly, the caregivers can offer resources that satisfy the infants' primary needs of survival, comfort, and support. The caregivers also enrich the infants' self-identity by teaching them who they are and how family members are connected to them. In addition, the caregivers enhance the infants' self-efficacy by training them on what they can do. The caregivers' protection, support, and care are essential in boosting the infants' proximity or attachment.

Inspired by attachment theory, Wan and Chen (2021) further proposed a framework that explains the relationship between anthropomorphism and object attachment. Anthropomorphized objects presumably deliver valuable resources that meet persons' desires: a sense of comfort and pleasantness, self-identity (including individual self, relational self, and collective self), and self-efficacy (Wan & Chen, 2021). These domains make critical contributions to people's emotional attachment to humanized objects. Although this study provides new insights into the effects of

anthropomorphism on object attachment, empirical research is necessary to test and confirm those findings.

Extending the application of attachment theory (Bowlby, 1969) and the framework suggested by (Wan & Chen, 2021), our study experimentally investigates an intimate relationship between brand anthropomorphism and brand attachment. This study generally supports the notion that anthropomorphizing brands can provide utilities that strengthen self-efficacy, self-esteem, sense of belonging, and psychological comfort. The effects of these primary psychological pillars combine to create brand attachment.

2.2. The concept of anthropomorphism

Many social psychologists debate that anthropomorphism entails more than basically enlivening nonhuman entities (i.e., animism). Indeed, anthropomorphism is assumed as a psychological process of inductive inference about the unobservable qualities of inanimate agents (Epley et al., 2007). This perspective aligns with the person construal theory that provides a cognitive explanation for how people should be aware of anthropomorphized products. From this sense, observers accumulate concrete information and create general meaning that is ascribed to the target objects; the entire process of making these judgments can be labeled as a process of abstraction (Han et al., 2019).

Guthrie and Guthrie (1995) proposed three types of anthropomorphism: partial, literal, and accidental. The partial anthropomorphism draws more attention from previous research. This form occurs when inanimate entities demonstrate human shape, manifest human characters, or mimic human behaviors. People recognize such agents as resembling humans without viewing them as real people. In contrast, the literal type happens if people believe inanimate objects as actual humans. This belief might result from some mistaken perception, for instance, “when someone mistakes stacked garbage bags in dim light for a person crouching in wait” (Aggarwal & McGill, 2007, p. 469). Finally, accidental anthropomorphism appears once people coincidentally consider some parts of humanity in animated entities. For example, someone occasionally imagines a human face in a rock (Aggarwal & McGill, 2007; Ha et al., 2022).

The strength of anthropomorphism beliefs is contingent on the presence of specific features. People do not activate and apply identical anthropomorphic representations to nonhuman agents in response to social stimuli. As found by Aggarwal and McGill (2007), the movement of an object might prompt consumers to think of being alive. Significantly, the objects moving at a speed like humans’ pace are more likely to be anthropomorphized, whereas the things moving very slowly seem absent from humankind.

2.3. The concept of brand anthropomorphism

Humanlike branding is related to brand personality. Brand personality conveys “a symbolic or self-expressive function” (Zhang et al., 2020, p. 04). Hence, consumers embrace anthropomorphized brands because such brands link to human traits that match their values and personalities. As a result, consumers frequently make connections with brands and build unique associations surrounding them. Moreover, by anthropomorphizing, brands are treated humanely and worthy of achieving moral care and consideration (Ha et al., 2022).

However, brand anthropomorphism and brand personality are distinct constructs. The former represents how branded products are rendered as actual human beings. The latter refers to metaphoric reasoning embedded in brands and products (Guido & Peluso, 2015). Prior research (Aaker, 1997) developed a psychological process of imbuing brands with personalities, and this

process is indexed as animism. Many social psychologists further differentiated anthropomorphism from animism. These scholars debated that anthropomorphism entails more than simply attributing life to the nonliving. Deeply anthropomorphizing a brand regard imbuing it with humanized features, motives, or passions (Zhang et al., 2020).

Previous research (Aggarwal & McGill, 2007) derived a conceptual framework that describes the underlying mechanism of brand anthropomorphism. They posited that the congruity between self-concept and brand image is robustly believed as a predictive factor of anthropomorphized brands. From this sense, the likelihood of anthropomorphism and its subsequent evaluation of branded products is contingent on the degree to which such products are endowed with features that fit the aroused human schema. Schema refers to a set of beliefs or experiences stored in the memory system that shape the meaning people assign to a stimulus (Solomon, 1983). Thus, activating and applying suitable schema is very important to marketers because this directs the way consumers will adopt to evaluate products or advertising messages. As found by Aggarwal and McGill (2007), when marketers stimulate consumers to humanize a product, the schema for the specific stereotypes associated with humans is evoked, and the consequent judgment about the product is based on the extent to which its features are congruent with that schema. Aggarwal and McGill (2007) further state that once the level of congruity between product characteristics and the category schema is high, consumers are more likely to prefer experiential knowledge over analytical information to evaluate the products.

2.4. The concept of brand attachment

The pioneering work on attachment was developed by Bowlby (1969) in terms of parent-infant connections. An attachment refers to “an emotion-laden target-specific bond between a person and a specific object” (Thomson et al., 2005, p. 78). Scholars have widely applied the concept of attachment in the branding context. Thomson et al. (2005) conceptualized the notion of emotional brand attachment that demonstrates a positive consumer-brand relationship. Later, Park et al. (2013) extended the concept of brand attachment in terms of brand functionality as a means for self-expansion. People are stimulated to establish and maintain close relationships with brands to expand themselves. By incorporating brand resources, perspectives, and attributes into the self, people strengthen their ability to achieve their aspirations (Bagozzi, Romani, Grappi, & Zarantonello, 2021).

The strength of an individual’s attachment to a brand can manifest in several approaches. Early research examined four behavioral indicators of brand attachment: proximity maintenance, safe haven, emotional security, and separation distress (Loroz & Braig, 2015). Proximity maintenance involves people’s propensity to remain physically close to the target brand (Shimul, 2022). A safe haven refers to a source of physical or psychological protection provided by the attachment brand (Loroz & Braig, 2015). Such a brand also triggers a sense of support or emotional security from a stressful, external environment (Lam & Shankar, 2014; Thomson et al., 2005). Finally, consumers would experience separation distress if the brand were to go off the market. These manifestations have been widely used to measure attachment bonds (Bagozzi et al., 2021; Loroz & Braig, 2015; Shimul, 2022).

Furthermore, extant literature has investigated various factors affecting the genesis of brand attachment. Brand trust (Charton-Vachet & Lombart, 2018), brand experience (Hussain, Jing, Junaid, Zaman, & Shi, 2021), brand personality (Donvito et al., 2020), and brand familiarity (Grobert, Cuny, & Fornerino, 2016) have seen as important drivers that regulate brand attachment. Building on Sirgy’s (1982) self-congruity theory, many authors also consider self-congruence as a dominant antecedent leading to brand attachment. The concept of self-

congruence refers to a match between the brand personality and the consumer's self (Aaker, 1999; Malär, Krohmer, Hoyer, & Nyffenegger, 2011). Consumers develop an attachment to the brands that reflects who they are (i.e., actual self-congruence) and whom they would like to be (i.e., ideal self-congruence) (Shimul, 2022). An empirical study conducted by Malär et al. (2011) illustrates that actual self-congruence has a stronger impact on emotional brand attachment than ideal self-congruence.

2.5. Hypothesis development

In terms of an overview of the literature on the relationship between brand anthropomorphism and brand attachment, there were only ten academic papers studying consumers' attachment to anthropomorphic brands. In particular, those consist of three review papers (MacInnis & Folkes, 2017; Veer, 2013; Wan & Chen, 2021) and seven empirical studies (Chen & Lin, 2021; Girardin, Blal, & Lunardo, 2023; Kikuchi, Noriuchi, Isobe, Shirato, & Hirao, 2021; Li, Su, Guan, & Zhang, 2023; Ma et al., 2023; Rajput, Batool, & Khan, 2020; Wu, Chen, & Dou, 2017). This emerging topic has been investigated across various branding contexts, including energy drinks, hotels, fashion clothing, luxury cosmetics, and self-service technology. The experiment method has been applied as a common approach for exploring the research domain.

Generally, scholars tested and confirmed the causal relationship between brand anthropomorphism and brand attachment. Nevertheless, no study investigated the mediating paths of this correlation via important psychological factors such as self-efficacy, self-esteem, sense of belonging, and comfort. To address prior research's shortcomings, our paper aims to examine both the direct and indirect impacts of anthropomorphic brands on consumers' emotional attachment. Thus, the study provides a richer and more complete view of brand attachment in terms of brand anthropomorphism.

2.5.1. Brand anthropomorphism and brand attachment

Several scholars debate that self-concept is a key concept when studying brand attachment. Kikuchi et al. (2021, p. 01) defined attachment as "a is a psychological state of mind in which a strong cognitive and affective bond connects a brand with an individual in such a way that the brand is viewed as an extension of the self". In other words, brand attachment relies on the extent to which persons identify the brand as being part of themselves and reflecting who they are (Park et al., 2010). The more consumers perceive a fit between the self and the brand (i.e., self-congruence), the greater their brand attachment becomes (Malär et al., 2011).

In this regard, prior researchers extended the concept of attachment to anthropomorphic brands. Anthropomorphism fundamentally acquires, activates, and applies human knowledge to a target (Epley et al., 2007). Once consumers perceive the brand as humanlike, they can expand their self-concept to reason about the brand and see it as an extension of the self (Chen & Lin, 2021). This belief enhances emotional attachment between anthropomorphized the brand and consumers' sense of self (Kim & Swaminathan, 2021).

Building on Epley et al.'s (2007) three-factor theory of anthropomorphism and attachment theory (Bowlby, 1969), it is logical to predict that humanizing a beverage drink brand is an effective way to enhance brand attachment. This belief is consistent with prior research as mentioned (Chen & Lin, 2021; Girardin et al., 2023; Kikuchi et al., 2021; Li et al., 2023; Ma et al., 2023; Rajput et al., 2020; Wu et al., 2017). Thus, the hypothesis is illustrated as follows:

H1: Anthropomorphism positively influences drink brand attachment

2.5.2. *The mediating role of psychological factors*

In this section, the authors further proposed a mediation mechanism that offers more credible explanations for the relationship between brand anthropomorphism and brand attachment. Particularly, the research focused on the mediating roles of four fundamental psychological pillars, consisting of self-efficacy, self-esteem, sense of belonging, and comfort. According to Epley et al.'s (2007) three-factor theory, humanizing the beverage brand can activate these primary pillars. Combined with the attachment theory (Bowlby, 1969), it is possible to believe that when consumers perceive higher levels of self-efficacy, self-esteem, sense of belonging, and comfort, they tend to develop a greater attachment to such brand brands.

As to effecting motivations (Epley et al., 2007), several scholars argued that consumers are motivated to enter and maintain intimate connections with humanlike brands that enable the self, providing a sense of self-efficacy and competence (MacInnis & Folkes, 2017). Self-efficacy refers to “an individual’s belief in his or her capacity to execute behaviors necessary to produce specific performance attainments” (Wan & Chen, 2021, p. 04). Consumers embrace anthropomorphic brands (Freling & Forbes, 2005) and use them as a means of self-expansion (Park et al., 2013). By incorporating brand resources, perspectives, and attributes in their selves, people increase their ability to achieve their desires (Bagozzi et al., 2021). These arguments supported the notion that anthropomorphized beverage brands should promote a sense of self-efficacy. As discussed, the hypothesis is suggested as follows:

H2: Anthropomorphized beverage brands have a positive effect on self-efficacy

Referring to the social motivation tenet (Epley et al., 2007), consumers tend to anthropomorphize brands that can enrich the individual self and promote a desired identity (MacInnis & Folkes, 2017). In other words, such brands enable consumers to strengthen their self-esteem (Wan & Chen, 2021). Self-esteem is defined as an individual’s positive self-concept (Malär et al., 2011). Persons tend to evaluate good about themselves. People high in self-esteem are more likely to view their actual self as positive, reflecting high levels of perceived social value and status (MacDougall, Vandermeer, & Norman, 2017). In the branding context, the social value of branded products is applied as a cue to represent consumers’ value and their social status or self-esteem (Fazal-e-Hasan, Ahmadi, Mortimer, Grimmer, & Kelly, 2018; Hou, Jo, & Sarigöllü, 2020; Luo et al., 2020; Wang, Wang, Lin, & Abdullat, 2021). Thus, the hypothesis is shown as follows:

H3: Anthropomorphized beverage brands have a positive effect on self-esteem

Anthropomorphic brands are additionally expected to intensify a sense of belonging, which denotes “a sense of emotional involvement with the group” (Cheung & Lee, 2012, p. 220). Prior research has shown that anthropomorphism prompts people to believe non-human agents as a group that is analogous to the human group and provides a sense of human connection (Kwok, Grisham, & Norberg, 2018). When people feel threats to their belongingness; they show a greater preference for anthropomorphized products because such items remind them of the group they belong to (Chen, Wan, & Levy, 2017). The social value of humanized entities has the potential to nudge consumers toward feeling more acceptable by others in terms of shared or collective identity (i.e., a valued group) (Algesheimer, Dholakia, & Herrmann., 2005). Through associations with social groups, social classes, and reference groups, this utility of the brand can enhance the perception of being recognized by others and satisfy consumers’ fundamental need related to belongingness (Ma, Hong, Yoo, & Yang, 2021; Suphasomboon & Vassanadumrongdee, 2022). Hence, the hypothesis is proposed as follows:

H4: Anthropomorphized beverage brands have a positive effect on a sense of belonging

Moreover, the paper posited that anthropomorphized brands might have a powerful ability to intensify psychological consumer comfort. This positive emotion involves consumers' peace of mind, sense of ease, and worry-free (Ainsworth & Foster, 2017; Radia, Purohit, Desai, & Nenavani, 2022; Spake, Beatty, Brockman, & Crutchfield, 2003), which can be used to maintain strong relationships with brands (Stern, 1997). By applying the knowledge of human beings to an anthropomorphized object, persons see themselves in such entities (Epley et al., 2007; Higgins, 1996). Once the brand "fits" consumers' self-concept, it generates a sense of comfort for consumers (Aaker, 1999; Sirgy, 1982). This perspective is aligned with cognitive consistency theories (Aronson, 1969; Heider, 1946), which suggests that people seek consistency in their beliefs and behaviors to attain feelings of comfort and pleasantness (Malär et al., 2011). Therefore, the hypothesis is presented as follows:

H5: Anthropomorphized beverage brands have a positive effect on psychological comfort

Next, anthropomorphizing brands is presumably considered to facilitate brand attachment through its effects on four fundamental psychological pillars as mentioned. These primary pillars are independently examined in the research related to brand attachment. Existing literature shows that consumers become increasingly attached to humanized brands that enable the self and provide a sense of self-efficacy (MacInnis & Folkes, 2017). This view is similar to prior studies (Loroz & Braig, 2015; Ma et al., 2023), which suggest that competence (i.e., consumers' sense of accomplishment, effectiveness, and skill) is one of three psychological motivations that are positively linked to brand attachment. Another critical domain that can earn consumers' attachment to the brands is self-esteem. People feel closer to the brands that perform their utility to enrich individual self and promote a desired identity (Kwok et al., 2018; Liu, Kou, Guan, Hu, & Pu, 2020; Yeh, Wang, & Yieh, 2016). Consumers additionally shape a strong attachment to the brands due to recurrent unmet belonging needs. Loroz and Braig (2015) expressed a sense of belonging that is intimately related to an attachment, a sense of identification, and a sense of membership. Building on self-determination theory, Loroz and Braig (2015) debate that high levels of relatedness (i.e., feelings of closeness or connectedness to brands), including a sense of belonging has been also seen as a dominant driver that augments consumers' attachment to the brands. The final pillar closely associated with attachment is psychological comfort (Ainsworth & Foster, 2017). This notion is viewed as a positive emotion combined with moderate to low levels of arousal (Spake et al., 2003). It reflects the peace of mind and a sense of ease, which a brand provides for consumers to maintain strong relationships (Radia et al., 2022). Two other dimensions of comfort, physical comfort (e.g., relieving pain) and physiological comfort (e.g., involuntary responses to environmental discomfort), were not examined here as they were not relevant to our context. Taken together, the hypotheses are suggested as follows:

H6: Self-efficacy has a positive effect on beverage brand attachment

H7: Self-esteem has a positive effect on beverage brand attachment

H8: Sense of belonging has a positive effect on beverage brand attachment

H9: Psychological comfort has a positive effect on beverage brand attachment

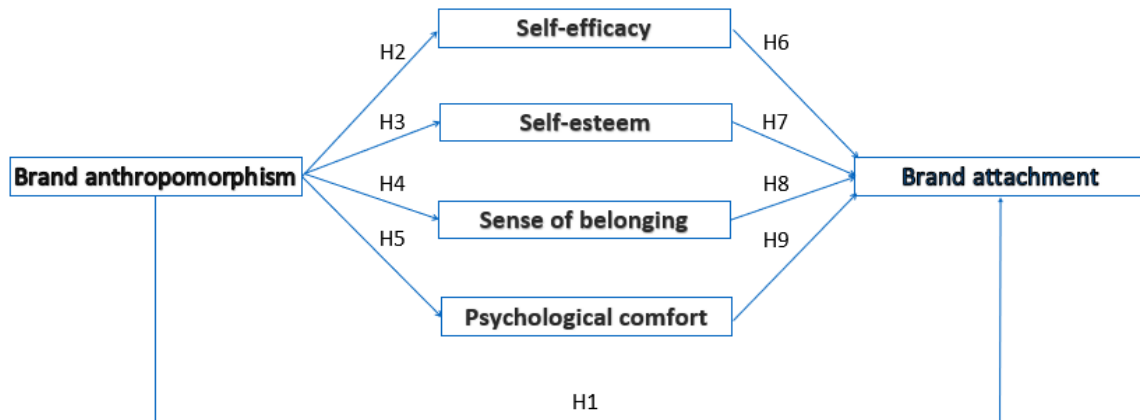


Figure 1. Proposed research model

3. Research method

3.1. Research process

The research process has three main steps. In the first step, the relevant literature was reviewed to uncover research problems and research gaps. Next, the research models and research hypotheses were proposed based on the identified research gaps. Then, the measurement scales were adopted from previous well-established studies to access the research variables of the proposed research models.

In the second step, the author conducted a pilot study. To validate the manipulation of anthropomorphism, the authors carried out a pre-test with 20 independent judges from the management school. The concept of brand anthropomorphism was explained to the judges. After that, they were presented with both non-anthropomorphized and anthropomorphized stimuli. Subsequently, they were asked to choose the brand that they perceived as more anthropomorphic.

Finally, an experiment study was carried out to test the mediation relationships. Data from online surveys of 201 respondents (non-students) were analyzed using the Partial Least Squares Structural Equation Model (PLS-SEM). The author selected PLS-SEM because of several reasons. First, this technique has been efficiently applied for exploratory purposes. Second, PLS-SEM would be appropriate for the circumstances of non-normality data and a relatively small sample size (Hair et al., 2019). Lastly, PLS-SEM would be useful for the assessment of mediating and moderating effects. Bearing those reasons in mind, PLS-SEM has been considered as the more suitable method for data analysis in this study.

3.2. Data collection

The study was conducted in Vietnam. A pilot test of the questionnaire was also conducted using a convenience sample of 20 respondents, allowing for assessing the questionnaire's length, readability of instructions, and the design and sequence of questions. The online surveys were distributed to 220 potential customers within a month in 2024. These respondents were asked to imagine a purchasing situation in which they were searching for a lemon tea brand. Due to inaccurate information submissions, 19 of the 220 completed surveys were removed, leaving 201 questionnaires for data analysis.

The study aimed to establish the internal validity of the brand anthropomorphism effect on brand attachment through four primary psychological pillars (i.e., self-efficacy, self-esteem, sense of belonging, and comfort) in a controlled experimental setting. Two hundred and one participants took part in the study in exchange for gifts. These respondents were asked to

imagine a purchasing situation in which they were searching for a lemon tea brand. Then, they were exposed to one of two (i.e., anthropomorphized vs. non anthropomorphized) versions of an ad for a fictitious brand and afterward reported their evaluations and emotional connections toward the brand. Finally, the manipulation check on anthropomorphism was administered, and then demographic variables were collected.

3.3. Stimulus materials

Consistent with prior research (Puzakova, Kwak, & Rocereto, 2013), brand anthropomorphism is manipulated by using the combination of visual and verbal humanlike elements. The brand in the anthropomorphized condition was named LeMon TEA (vs. Lemon Tea Plus). A pre-test with 20 independent judges from the management school was conducted to validate the anthropomorphism manipulations. The concept of brand anthropomorphism was explained to the judges. After that they were presented with both non-anthropomorphized and anthropomorphized stimuli. Next, they were asked to select the brand that they perceived as more anthropomorphic.



Figure 2. Non-anthropomorphized stimulus



Figure 3. Anthropomorphized stimulus

3.4. Measures

Scales used to test the proposed model were adopted from the literature. For the assessment of brand attachment, participants provided their level of agreement with the following statements: “My feelings toward the brand can characterized by (1) affectionate, (2) loved, (3) peaceful, (4) passionate, (5) delighted, (6) captivated, (7) connected, (8) attached” (1 = “strongly disagree”, and 7 = “strongly agree”) (Sung & Lee, 2023). This construct measurement was adopted by Sung and Lee (2023).

Brand anthropomorphism was manipulated by asking participants to provide their level of agreement with the following statements: “(1) [brand] has a strong brand personality; (2) I can easily imagine [brand] as a person; (3) I have no difficulties in imagining [brand] as a person” (1 = “strongly disagree”, and 7 = “strongly agree”). This scale was adopted from a study by Girardin et al. (2023).

Self-efficacy was measured with four items (e.g., I feel that I am an expert in using the brand), adapted from (Chen, Gully, & Eden, 2001; Shahzad, Zhang, Zafar, Ashfaq, & Rehman, 2023). Self-esteem was computed with only one item (i.e., overall positive attitude toward the self), adopted from Malär et al. (2011). Sense of belonging was calculated with three items (e.g., I feel a strong sense of belonging to the brand), adapted from Cheung and Lee (2012); Zhao, Lu, Wang, Chau, and Zhang (2012). Psychological comfort was measured using the six-item scale (e.g., 1 = “uncomfortable, worried,” and 7 = “comfortable, worry free”), developed by Ainsworth and Foster (2017); Spake et al. (2003). All questions (shown in Table 1) were measured on a seven-point scale.

4. Research results

4.1. Participants

A total of 220 Vietnamese persons were recruited to complete the online questionnaires. Nineteen subjects were eliminated due to obviously unserious answers. The valid sample included 128 females (63.7%) and 73 males (36.3%). Respondents’ characteristics are shown in Table 1. These participants were given a small gift as a reward after completing the survey.

Table 1

Demographic description

Characteristics		Frequency (N = 201)	Percent (100%)
Gender	Female	128	63.7
	Male	73	36.3
Age	18 - 25 years old	111	55.2
	26 - 35 years old	33	16.4
	36 - 45 years old	41	20.4
	46 - 55 years old	16	8.0
Occupation	Student	96	47.7
	Lecturer	11	5.5
	Officer	84	41.8
	Business	7	3.5
	Others	3	1.5

Characteristics		Frequency (N = 201)	Percent (100%)
Education	High school	9	4.5
	Undergraduate	87	43.3
	Postgraduate	105	52.2
Income	Below \$500	112	55.7
	\$500 - \$1,000	42	20.9
	\$1,000 - \$2,000	47	23.4

4.2. Manipulation test

The effect of the anthropomorphism manipulation was tested. The results showed that the scores for the perception of anthropomorphism in the anthropomorphism group (M = 5.20, SD = 1.12) were significantly higher than that of the non-anthropomorphism group (M = 4.26, SD = 1.21, t [199] = 5.65, p < 0.001). Accordingly, the manipulations of the experiment were valid.

4.3. Main findings

As expected, the main effect of anthropomorphism was significant. The scores for brand attachment were significantly higher in the anthropomorphism group (M = 4.96, SD = 1.01) than in the non-anthropomorphism group (M = 4.44, SD = 1.11, t [199] = 3.49 p < 0.01). The testing showed that brand anthropomorphism positively influenced brand attachment ($\beta_{\text{Total effects}} = 0.622, p < 0.001$). Thus, H1 is supported.

Subsequently, brand anthropomorphism was used as the independent variable, self-efficacy, self-esteem, sense of belonging, and psychological comfort as the mediating variables, and brand attachment as the dependent variables to conduct PLS-SEM analysis. To evaluate the measurement model, this study applied the process of Hair et al. (2019), which included the assessments of convergent validity, construct reliability, and discriminant validity (see Table 2 and Table 3). For convergent validity, all factor loadings were greater than 0.7, showing an acceptable internal convergent validity. Moreover, the values of the average variance extracted of all constructs were larger than 0.50, which warranted high convergent validity. Regarding reliability, Cronbach’s Alpha and composite reliability values were larger than 0.7. It explicitly implies that this study met the measurement reliability suggested by Fornell and Larcker (1981). The discriminant validity was further assessed in terms of the Heterotrait-Monotrait ratio criterion (HTMT). As the HTMT is below 0.90, the discriminant validity of the measurement was acceptable (Henseler, Ringle, & Sarstedt, 2015).

Table 2

Construct reliability and validity results

Construct	Cronbach’s Alpha	Composite Reliability	Average Variance Extracted
Brand anthropomorphism	0.844	0.906	0.763
Brand attachment	0.936	0.947	0.691
Self-efficacy	0.824	0.875	0.584
Self-esteem	0.834	0.889	0.668
Sense of belonging	0.871	0.912	0.721
Psychological comfort	0.941	0.953	0.774

Table 3

HTMT for discriminant assessment

	[1]	[2]	[3]	[4]	[5]
Brand anthropomorphism [1]					
Brand attachment [2]	0.689				
Self-efficacy [3]	0.564	0.713			
Self-esteem [4]	0.367	0.495	0.805		
Sense of belonging [5]	0.681	0.890	0.653	0.408	
Psychological comfort [6]	0.659	0.872	0.667	0.485	0.835

Table 4

Hypothesis testing results

Hypothesis		f ²	Beta	S. D	t-value	Results
H1	Anthropomorphism → Brand attachment	0.025 ^{small}	0.095*	0.046	2.095	Supported
H2	Anthropomorphism → Self-efficacy	0.333 ^{medium}	0.500***	0.055	9.055	Supported
H3	Anthropomorphism → Self-esteem	0.116 ^{small}	0.323***	0.063	5.165	Supported
H4	Anthropomorphism → Sense of belonging	0.527 ^{large}	0.588***	0.053	11.053	Supported
H5	Anthropomorphism → Comfort	0.543 ^{large}	0.593***	0.048	12.458	Supported
H6	Self-efficacy → Brand attachment	0.037 ^{small}	0.140*	0.065	2.144	Supported
H7	Self-esteem → Brand attachment	0.000	0.009	0.048	0.197	Not supported
H8	Sense of belonging → Brand attachment	0.250 ^{medium}	0.379***	0.055	6.893	Supported
H9	Comfort → Brand attachment	0.254 ^{medium}	0.389***	0.050	7.850	Supported

Significance level: ***p < 0.001, **p < 0.01, *p < 0.05; Effect size (f²): small (> 0.02), medium (> 0.15), and large (> 0.35)

Next, the structural model was assessed by applying the process of Sarstedt, Ringle, and Hair (2022), including collinearity assessment, R² assessment, effect size f², and statistical significance of structural relationships (see Table 4). According to these findings, brand anthropomorphism directly affected brand attachment. Additionally, humanized bands are highly associated with self-efficacy, self-esteem, a sense of belonging, and psychological comfort. Only self-esteem had no significant effect on brand attachment, whereas the rest of the psychological constructs positively influenced brand attachment.

Table 5

Specific indirect effects

Specific indirect path		Beta	S. D	t-value	Results
1	Brand anthropomorphism → Self-efficacy → Brand attachment	0.070*	0.030	2.334	Supported
2	Brand anthropomorphism → Sense of belonging → Brand attachment	0.223***	0.045	4.940	Supported
3	Brand anthropomorphism → Psychological comfort → Brand attachment	0.231***	0.032	7.180	Supported
4	Brand anthropomorphism → Self-esteem → Brand attachment	0.003	0.015	0.204	Not supported

Significance level: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The research further tested the mediating roles of self-efficacy, sense of belonging, and psychological comfort (see Table 5). This study examined the mediating effect following the process of Preacher and Hayes (2008), which suggested the testing of total indirect effect first, followed by testing the hypothesis regarding individual mediators. The results of the total indirect effect with 1,000 bootstrap samples showed that $\beta_{\text{Indirect}} = 0.527$, $p < 0.001$, which indicated self-efficacy ($\beta_{\text{self-efficacy}} = 0.07$, $p < 0.05$), sense of belonging ($\beta_{\text{sense of belonging}} = 0.223$, $p < 0.001$), and psychological comfort ($\beta_{\text{psychological comfort}} = 0.231$, $p < 0.001$) significantly contributed to the indirect effects of brand anthropomorphism on brand attachment. The value of effect size also indicated the partial mediating roles of these psychological pillars (Hair et al., 2019).

4.4. Discussion

The study illustrated that the proposed research framework has justified 78.4% of the variances in brand attachment. The results confirmed the causal relationship between brand anthropomorphism and brand attachment (hypothesis H1), which was proposed in past studies (Chen & Lin, 2021; Girardin et al., 2023; Kikuchi et al., 2021; Li et al., 2023; Ma et al., 2023; Rajput et al., 2020; Wu et al., 2017). The exploratory analysis also clarified the mediating paths of this correlation via four fundamental psychological factors. These findings moved beyond previous research and contributed to the specific values of this study.

Among the mentioned constructs, psychological comfort and sense of belonging had the largest effect size and beta coefficients, indicating important mediators (hypothesis H4, H5, H8, and H9). Our study additionally unveiled the role of self-efficacy that partially mediated the connection between anthropomorphized brands and consumers’ emotional attachment (hypothesis H2 and H6). This finding supported Park et al.’s (2013) view, which extended the concept of brand attachment in terms of brand functionality as a means for strengthening consumers’ abilities to achieve their goals. In this work, self-esteem had no significant effect on brand attachment (hypothesis H7). This might be because the nature of beverage products could not activate this psychological pillar. Future searches might investigate different kinds of branded products such as luxury brands, service brands, or digital brands.

5. Conclusions

In this study, the authors aim to propose a mediation mechanism that offers more credible explanations for the relationship between brand anthropomorphism and brand attachment. Particularly, the research concentrated on the mediating roles of four fundamental psychological pillars, consisting of self-efficacy, self-esteem, sense of belonging, and comfort. Drawing on Epley et al.'s (2007) three-factor theory, it is logical to believe that anthropomorphic brands can serve as cues to stimulate these primary pillars. When users perceive higher levels of self-efficacy, self-esteem, sense of belonging, and psychological comfort, they are more likely to show greater attachment to such brands. This belief was supported by the attachment theory (Bowlby, 1969).

The experiments study was conducted to examine the mediation relationships in the circumstance of lemon tea brands. Most hypotheses of the proposed research framework were supported, except for hypothesis 7, which indicated that only self-esteem played a powerless role in this context. Among the mentioned constructs, psychological comfort and sense of belonging have been seen as two essential mediators that help to explain why positioning healthy juice brands as humanlike can trigger more brand attachment. The results offered novel insights into the existing literature on the given research topic.

From a practical perspective, a deep understanding of brand anthropomorphism and its consequences achieved from this study could assist practitioners in adopting early changes in their brand management, allowing them to gain competitive advantages. Firms might practice humanlike branding as effective positioning strategies to facilitate higher level of psychological comfort and sense of belonging, thus leading to greater brand attachment. It should be valuable applications in the context of beverage brands.

Despite its significant contributions, this paper has several limitations, which will open new avenues for future research. Firstly, the experimental study was carried out in the case of beverage brands. Future scholars should observe different levels of consumers' brand attachment to various types of brands (e.g., premium brands or hotel brands) and anthropomorphic brand roles (e.g., leader vs. friend). Secondly, the participants of our research were Vietnamese people with a few groups of age, education, and occupation. Other authors may use more random samples from across nations and different cultures to improve the generality of the results. The last concern might be related to methodology. While the experiment has been widely used in a given field, applying new methods, such as neuroscience approaches (Bagozzi & Lee, 2017), should be an interesting direction for future research.

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