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Effect of Matching Individual Power Perception and Brand Anthropomorphism on Purchasing Intentions

Kang Gao [1], Xiaonan Li [1, 2]

[1] Bank of Suzhou, Suzhou 215000, China
[2] Postdoctoral Research Station, Nanjing University, Nanjing 210093, China

Abstract: This paper explores the mechanism and boundary conditions for the effect of matching anthropomorphized brand image and individual power perception on consumers' purchasing intention. Using a Stereotype Content Model, this paper divides brand anthropomorphism into warmth-related and competence-related anthropomorphized images and adopts different methods to activate consumers' power perception for discussion and verification. The results of the three experiments show that consumers with low power perception prefer warmth-related anthropomorphized brands while those with higher power perception lean towards competence-related ones. Matching high (low) power perception and types of anthropomorphism is mediated by an exchange relationship (communal relationship). The above effects exist only in the context of low perceived risk. When perceived risk is high, regardless of power perception, consumers all prefer competence-related anthropomorphized brands. This paper is of theoretical and practical significance as it not only enriches the research into brand anthropomorphism, but also provides guidance for tailoring strategies of brand anthropomorphism.

Keywords: Types of Brand Anthropomorphic Type; Power Perception; Relationship Norms; Perceived Risk.

1. Introduction

Brand anthropomorphism is widely applied in corporate marketing [1]. Some enterprises choose lifelike and interesting animal images, such as the well-known fox of Firefox, the Twitter bird, and the MSN butterfly. Others anthropomorphize their products for rich and intimate perceptions of their brands, like the anthropomorphic cartoon image Michelin Man of Michelin tires. Take the traditional Imperial Palace Taobao as another example. It has found internet fame as it communicates with consumers in an approachable and cute image that became a hit in the social media. In addition, as artificial intelligence is used more widely, some enterprises extend their brands by using artificial intelligence to provide a variety of anthropomorphic emotions, thoughts and behaviors that interact with the brand. For example, Siri, a virtual assistant on iPhone devices, can understand human voice commands and respond accordingly. AlphaGo, a bot developed by Google for the game of Go, may get angry in a tournament, adding fun and enjoyment to the game. Microsoft named its AI robot Xiaoice, a cute girl that offers practical knowledge, such as an encyclopedia, traffic guidance and restaurant reviews. In addition to chatting with users, she can even make a phone call to human beings, which is making her more popular. The anthropomorphic images in the above examples have unique features, but no researcher has tried to classify them for study. Besides, under what circumstances will consumers have the tendency to anthropomorphize brands?

Our literature review reveals that most studies approach the influence of anthropomorphism on consumer behaviors from the perspective of whether anthropomorphism exists; few have paid attention to factors like the types of anthropomorphic image and individual differences of consumers. On this basis, this work further explores the impact of different types of anthropomorphism on consumers. Studies have shown that judgment about the warmth and competence of others is also applicable to consumers' perceptions of enterprises[2].Therefore, with reference to the Stereotype Content Model, we classify brand anthropomorphism into warmth-related and competence-related anthropomorphic brands. From the perspective of individual power perception, we examine the influence of brand anthropomorphism on consumer psychology and behavior and elaborate on the mechanism and boundary conditions for the effect of matching types of brand anthropomorphism and consumer power perceptions on the purchasing intention.

2. Literature Review and Research Hypothesis

2.1. Brand Anthropomorphism

Brand anthropomorphism means that consumers regard a brand as a living individual with emotions, a mind and intentions, who is capable of acting independently and a major part of society to build social connections[3]. By creating an anthropomorphic image, an enterprise gives its brand natural human attributes, such as appearance and image, as well as social attributes, including emotion, communication, and thinking, so that consumers see the brand as a person with "real personality" that is similar to them. Therefore, the connection between brands and consumers evolves into one between human beings. In this way, brand anthropomorphism maximizes the social connection between brands and consumers and enhances consumers' preference for and trust in brands. Scholars find that the tendency of anthropomorphism is mainly strengthened with visual cues, language activation, and rhetorical devices to enhance consumers' perception of brand anthropomorphism. Firstly, some studies use visual cues to induce consumers to anthropomorphize brands. For example, making the brand features look like human faces or bodies can lead to a stronger tendency of anthropomorphism to make these brands more easily perceived as human beings[4-5]. Secondly, language-based marketing strategies like giving products human

names[6-7], genders[8]or describing the products in the first person can increase the consumers' tendency to anthropomorphize a brand. Thirdly, such tendency can also be reinforced by expressing specific meanings about brands through rhetorical devices, such as visual or linguistic metaphors or similes[1]. While methods vary, brand anthropomorphism essentially means regarding the inanimate brands as human beings with real emotions, from partial anthropomorphism where similarities in external characteristics bring positive evaluation to complete anthropomorphism where the given human perception, motivation, thought, consciousness, behavior and emotion resonate with consumers[9-10].

Brand anthropomorphism offers a unique form of interaction between consumers and brands, extending the social attributes of interpersonal interaction to the construction of deeper relationships between people and brands. When consumers' values are consistent with the brand values that they perceive, brand anthropomorphism is more effective in promoting the consumers' willingness to create value with brands. Since the relationship between consumers and anthropomorphized brands bears similarities to an interpersonal relationship [11]. We can refer to relevant theories of social psychology to examine consumers' perception of anthropomorphized brands. The Stereotype Content Model believes that people's stereotypes have two dimensions, namely, "warmth" and "competence" [12]. When an individual connects or interacts with others, the sincerity, enthusiasm, thoughtfulness, friendliness and trust of others belong to the "warmth" dimension while efficiency, skills, abilities, wisdom, strength, etc. are categorized under the "competence" dimension. In the brand anthropomorphism process, labeling brands with different social roles allows communication between consumers and brands to shift from "it" to "he/she". This kind of anthropomorphized communication not only provides consumers with a smoother perceptual experience and more pleasant emotional communication, but to some extent brings consumers great comfort that increases their intimacy with brands. This helps improve the consumers' brand evaluation and attitude and satisfy their need for social communication. In a word, this study divides brand anthropomorphism into competence-related and warmth-related brand anthropomorphism based on the "competence" and "warmth" dimensions of the Stereotype Content Model.

2.2. Power Perception and Related Studies

Power perception refers to the ability perceived by individuals to manipulate or determine the behaviors of others.as manifested by their choice to give or refuse to give certain resources [13]. The difference in power perception is exhibited by the asymmetrical control of key resources by different individuals or groups[14]. Usually, those with high power have more resources and weaker attachment to or dependence on external things, and are more concerned with their own utility and less susceptible to external factors[15]. The influence of power perception on consumer behaviors is mainly reflected in two aspects. On the one hand, power perception also affects consumers' perception activities such as loneliness and risk perception. Individuals with high power perception have less need for social relationships and are therefore less likely to feel lonely [6]. They believe that they have the ability to control anthropomorphized products and lower risk perception, therefore they have a stronger intention to use anthropomorphized products. It is the other way around for those with low power perception[11]. The possible reason is that the difference in power perception influences the way consumers' process information and the results of information persuasion[16]. On the other hand, power perception affects the values of consumers. High-power consumers pay more attention to their own feelings and are more willing to spend on themselves[17]. While those with low power attach more importance to social relationships[15]. Individuals with high power perception are more likely to save money and they are more willing to monitor money during consumption[18-19]. In addition, consumers' perception of power stability affects their tendency of unethical behaviors[20], which is moderated by the difference between self-interest and altruism[21]. Consumers with high power perception are more likely to switch brands, in which active orientation plays a mediating role[22].In the field of the anthropomorphized marketing, when consumers with different power perceptions face different types of brand/product anthropomorphism, they have different preferences and evaluations. To be specific, high-power consumers think more highly of anthropomorphized brands that seem more competent, efficient, and similar to leaders or business partners. On the contrary, low-power consumers view favorably anthropomorphized brands that seem sincere, friendly, warm and similar to friends and good partners. Hence, the following hypothesis is posited

H1：Consumers with low power perception prefer warmth-related anthropomorphized brands to competence-related ones, while consumers with high power perception prefer competence-related anthropomorphized brands to warmth-related ones.

2.3. The Mediating Role of Relationship Norms in Matching Power Perception and the Type of Brand Anthropomorphism

Clark & Mills believe that relationship norms describe the expectations of different individuals about their own and other people's activities that involve interpersonal relationships, and divide them into exchange relationship norms and communal relationship norms[23]. In an exchange relationship, people offer help for money reward, and they weigh the reward against what they have given. The precondition of their giving is the reward that they may receive in the future. On the contrary, in a communal relationship, people neither expect reward for their help nor compare their reward with what they have given. They think that it is their responsibility and obligation to help others and meet their needs[24]. Further research discloses that power perception has two mechanisms, namely, pro-self-orientation and prosocial orientation. Pro-self-orientation means that individuals exist as the dominant, express themselves by exhibiting their individuality and self-consciousness. To them, they themselves are the most important and valuable. This is the exchange relationship in the theory of relationship norms. Prosocial orientation is reflected in the sensitivity and participation of individuals in some larger social groups such as families, enterprises, and societies. It emphasizes that individuals express themselves by considering other people's feelings in their thinking and decision-making and show greater concern for others [25], which is the communal relationship in the theory of relationship norms. The Agentic-Communal Model believes that individuals with higher power perception are inclined to agentic orientation, which leads

them to pay more attention to self-expression, self-improvement and self-protection. On the contrary, individuals with low power perception tend to produce communal orientation, which leads them to pay more attention to their relationship with others and consider more the feelings of others during decision-making. The high-power individuals have agentic orientation, which leads to a series of competence-related behavioral outcomes, such as self-confidence[26], self-efficacy[27], and dominating behavior[11]. On the contrary, low-power individuals have a communal orientation, which leads to a series of warmth-related behavioral outcomes, such as caring for others[29], and more empathy and sympathy[30]. Therefore, high-power individuals pay more attention to ability while the lower-power ones attach more importance to warmth. The former pays more attention to the control of power and personal feelings, thus is more likely to resonate with marketing activities that highlight their own power. Similarly, the latter is more concerned with building a good relationship with others, thus is more likely to be persuaded by information that emphasizes warm relationships[31]. According to the agentic-communal model and the theory of relationship norms, the exchange relationship is more related to competence-related information, while the communal relationship to warmth-related information.

It is inferred that when consumers face different types of brands or product anthropomorphism, consumers with low power perception prefer forming a communal relationship with anthropomorphized brands. That is, being friends with the brands based on mutual trust and selfless help, due to their low self-esteem, low self-worth and lack of security. Matching low power perception and warmth-related anthropomorphized brands exposes individuals to more common relationships, thus increasing their purchasing intention. With higher self-esteem and self-worth, consumers with high power perception believe that they have the ability to maintain certain interpersonal relationships and are more willing to form an exchange relationship with anthropomorphized brands, that is, an equal cooperative exchange relationship. They prefer competence-related anthropomorphized brands. Matching such brands and high-power perception exposes individuals to more exchange relationships, thus increasing their purchasing intention. Hence, the following hypotheses have been put forward:

H2: Communal relationships mediate the interaction between consumers with low power perception and warmth-related anthropomorphized brands.

H3: Exchange relationships mediate the interaction between consumers with high power perception and competence-related anthropomorphized brands.

2.4. The Boundary Role of Perceived Risk

Perceived risk is the harm of uncertainties and adverse consequences perceived by individuals during consumption. When consumers perceive higher risks for their purchasing behavior, they will take various measures to reduce it, such as trying new products, lowering psychological expectations or comparing the performance of different products[33]. In other words, higher perceived risk will prompt individuals to shift their target of choice to reduce it. As a core driving force of social interaction, power perception is a major factor affecting individual emotions, cognition and decision-making, especially individual risk decision-making[32]. The perception of high risk will add to the anthropomorphism of slot machines by individuals with low power perception[11]. Low power means the failure to control the surrounding environment and resources, as well as the series of uncertain consequences. Therefore, individuals with low power perception are less willing to stay in this kind of situation for a long time. To avoid these negative consequences, individuals can choose to reduce external factors like perceived risks, uncertainties and adverse consequences during consumption, or try to improve their power perception and their ability to resist uncertainties. High perceived risk will motivate consumers to prioritize their security needs over the pursuit of power perception. Therefore, in high-risk situations, individuals who originally have low power perception will also turn and seek "security", which in turn will draw their attention to product information clues that convey competence and security[34]. At the same time, these information clues play a more important role in the consumers' purchase decision-making.

Based on the above discussion, in the context of high perceived risk, individuals with low power perception no longer prefer the anthropomorphized brands that are "warm", "friendly" and "sincere"; instead, those reflecting competence, efficiency and skills become their first choice. Compared with the "warmth" attribute, the "competence" attribute of the anthropomorphized brands better reduces consumers' perceived risk. Hence, the information conveyed by the competence-related anthropomorphized brands can better satisfy consumers' need to avoid adverse consequences[35]. It can be seen that, when perceived risk is high, regardless of the level of individual power perception, consumers prefer competence-related anthropomorphized brands. On the contrary, in the context of low perceived risk, different consumers' preference for types of anthropomorphism depends on their power perception. As mentioned previously, consumers with low power perception tend to choose warmth-related anthropomorphized brands while those with high power perception go for competence-related ones. Hence, the following hypothesis has been put forward:

H4: The interaction between power perception and types of anthropomorphism in brand evaluations is mediated by perceived risk. In the context of low perceived risk, the interaction model is the same as in H1; in the context of high perceived risk, regardless of individual power perception, consumers prefer competence-related anthropomorphized brands to warmth-related ones.

Based on the research hypotheses of this paper, our research model emerges, as in Figure 1.

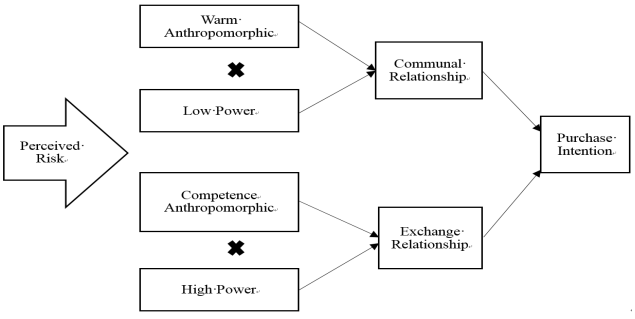


Figure 1. THE CONCEPTUAL FRAMEWORK

In what follows, three experiments are carried out to test the above hypotheses. To be specific, Experiment 1 examines the differences in preference of different types of

anthropomorphism by activing power perception, the effect of their matching on purchasing intention, and the mediating role of the two kinds of relationship norms (communal relationship and exchange relationship). Experiment 2 repeats the results of Experiment 1 using a new way to activate power perception and different experimental stimuli. Experiment 3 introduces the variable "consumers' perceived risk" on the basis of Experiment 2 to explore the mediating role of the effect of matching power perception and types of anthropomorphism on purchasing intention and the boundary conditions.

3. Experiments 1

This study is designed to test the effect of matching consumers' power perception and types of brand anthropomorphism on purchasing intention, and the mediating role of relationship norms. First, a preliminary experiment is conducted to find out whether the brand stimuli to be used in the formal experiment could stimulate the subjects to perceive different types of anthropomorphism.

3.1. Preliminary Experiment

In the preliminary experiment, 30 subjects (including 14 males and 16 females, with an average age of 20.3) were recruited to test the experimental stimuli and scenarios for the formal experiment. Each subject receives a reward of 5 yuan after the experiment.

First, 20 groups of cartoon figures were selected from the internet. Each group contains two similar pictures that represent two different types of anthropomorphism. Three senior professionals are invited to judge the accuracy and similarity of each group of pictures in reflecting the competence and warmth of the two types of anthropomorphism. Finally, three groups of pictures are selected for the follow-up studies. Subjects are randomly assigned to different groups to read the brand advertisements. With reference to existing research[35] for the manipulation method, on the left side of the advertisements are different pictures of the same cartoon figure. On the right side are descriptions of the advertised products. The product layout, picture size, brand information and word counts are the same; the only difference is one emphasizes the competence characteristics and the other one emphasizes the warmth characteristics (the figures see Appendix A.).

After reading the description, the subjects completed a manipulation check on types of anthropomorphism (7-point Likert scale). The four items related to competence are "I think Debao is smart and confident/ competent/ skilled/ efficient", while those involving warmth are "I think Debao is friendly /enthusiastic/warm/sincere". Paired sample T test revealed that, for competence-related products, the subjects within the group scored significantly higher for the competence dimension than the warmth dimension. For warmth-related products, the subjects within the group scored significantly higher for the warmth dimension than the competence dimension. Those results point to the rational manipulation of types of anthropomorphism and image in the preliminary experiment.

3.2. Design and Procedure

In Experiment 1, a total of 132 subjects were randomly assigned to the conditions of a 2 (types of anthropomorphism: warm vs. Competence) × 2 (power perception: high vs. low) between-subjects design.

The subjects were told that they would participate in two separate studies and fill out the emotion scale. First, the power perception of subjects was activated. With reference to the previous studies, two methods, namely, searching vocabulary and recalling experience, were used to temporarily manipulate the subjects' power perception. The task of searching vocabulary[36-37], required the subjects to circle 18 words from the 12×12 Chinese character matrix according to the requirements. The 18 words in the high (low) power perception activation group included 13 words related to high (low) power and 5 neutral words. The task of recalling experience[25][38],required the subjects to recall an experience where they were full of power or lacked power based on the scenario description, and elaborate on the situation and their feelings at the time. After writing down their personal experiences, the subjects received a control check to activate their power perception[39]. Then, they moved on to read a group of brand advertisements. The anthropomorphized cartoon figures were competence-related and warmth-related, respectively. The pictures and ad descriptions for the control of brand anthropomorphism were the same as those in the preliminary experiment. After reading the ads, the subjects first attended a control check on types of anthropomorphism (the same as in the preliminary experiment), and then filled out their purchasing intention[40] and relationship norms[24]. At last, the researchers measured the emotions of all the subjects to ensure that there were no disturbing emotions that might cause significant differences in the process[41]. The results showed no significant difference before and after the experiment ($P>0.05$), so the emotional factor would not be considered in the follow-up experiment.

3.3. Results and Summary

Manipulation check: First, analysis of variance of repeated measurement was performed on the types of anthropomorphism. The results showed that the interactive effect of the grouping of types of anthropomorphism was significant. For competence-related products, the competence dimension scored significantly higher than the warmth dimension. For warmth-related products, the warmth dimension scored significantly higher than the competence dimension. This pointed to the success of the control of the types of anthropomorphism and images in this experiment. Then a check on the control of power perception was conducted. The results of analysis of variance indicated that the main effect of types of anthropomorphism was not significant, and nor was the interactive effect of types of anthropomorphism and power perception; only power perception had significant main effect. High power group, low power group, which attested to the effective control of power perception in this experiment.

Purchase intention. A two-way between-subjects ANOVA conducted for the purchase intention returned a significant two-way interaction between power perception and type of anthropomorphism (F (1, 118) =7.17, $P<0.01$), while the main effect of type of anthropomorphism were not significant ($p>0.05$). Simple effect analysis showed that individuals with low power perception had higher purchase intentions for warmth-related anthropomorphized brands than competence-related ones (M_{warmth}=5.03, SD=1.03 $M_{compentence}$=4.51, SD=1.17, F (1, 118) =4.22, $P<0.05$), while those with high power perception had higher purchase intentions for

competence-related anthropomorphized brands than warmth-related ones. ($M_{competence}$=5.56, SD=0.93, M_{warmth}=5.04, SD=1.04, F (1, 118) =3.32, P=0.07). Thus, Hypothesis 1 was confirmed (see figure 2).

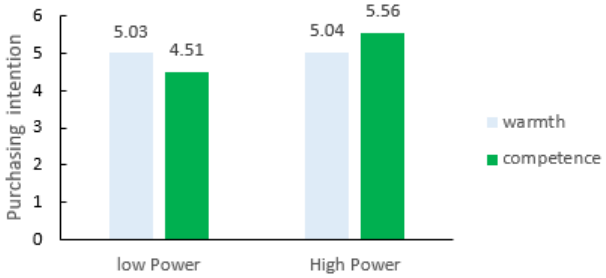


Figure 2. Effect of matching power perception and types of anthropomorphism on purchase intention

Mediation analysis. First of all, we tested the mediating role of exchange relationship and communal relationship in the interactive effect of power perception and type of anthropomorphism on purchase intention. Regarding communal relationship, results revealed that in the low power condition, the CI ranged from -1.4281 to 0.2514, whereas in the high-power condition, the CI ranged from -0.1809 to 0.0245, providing evidence that communal relationship mediated the interactive effect of low power perception and warmth-related anthropomorphism on purchase intention. That is, Hypothesis 2 was confirmed. Finally, for exchange relationship, results revealed that in the high-power condition, the CI condition ranged from 0.0509 to 0.6504, whereas in the low-power condition, the CI ranged from-0.0634 to 0.1613, providing evidence that exchange relationship mediated the interactive effect of high-power perception and competence-related anthropomorphism on purchase intention. That is, Hypothesis 3 was confirmed.

The results of Experiment 1 showed that matching consumers' power perception and types of brand anthropomorphism affected the preference of purchase intention. To be specific, consumers with low power perception preferred warmth-related anthropomorphized brands while those with high power perception leaned towards competence-related anthropomorphized brands, which was mediated by relationship norms. In the next experiment, we used a new way to manipulate power perception and new experimental stimuli to improve the external validity of research results.

4. Experiment 2

In Experiment 2, a new way to manipulate power perception is adopted, and new anthropomorphized images and a new type of product are used to repeat the results of Experiment 1 to improve the stability and universality of the research conclusions.

4.1. Design and Procedure

In Experiment 2, a total of 193 students (M_{age}=20.7; 95 males and 98 females) were randomly assigned to the conditions of a 2 (types of anthropomorphism: warm vs. competence) × 2 (power perception: high vs. low) between-subjects design.

The subjects were told to participate in two independent, unrelated studies and their power perception was activated. We drew on existing studies and combined that task of searching vocabulary (the same as in experiment 1) and role play to temporarily manipulate the subjects' power perception. Role play as a control method has been widely recognized in previous related research[26][42]. Subjects were required to write down as many details as possible about their feelings, thoughts, and behaviors when they controlled power or when they were controlled by others by imagining themselves in different roles (boss/subordinate) according to the situation description. After that, the subjects received a check on the control of power perception. When the test was completed, they moved on to read the brand ads for a smart bracelet. The anthropomorphized cartoon figures in ads were competence-related and warmth-related respectively. See the pictures and description for manipulation of the anthropomorphized brands (the figures see Appendix B.). After the subjects read the ads, manipulation check on types of anthropomorphism, purchase intention, and relationship norms are measured (as in Experiment 1).

4.2. Results and Summary

Manipulation check: *F*irst, a repeated measures ANOVA conducted for the types of anthropomorphism indicated that the interaction effect of the grouping of types of anthropomorphism was significant (F (1, 120) =611.04, p<0.001). *F*or competence-related products, the competence dimension scored ($M_{competence}$=5.80, SD=0.73) significantly higher than the warmth dimension (M_{warmth}=3.79, SD=0.64, F (1, 120) =281.63, p<0.001). *F*or warmth-related products, the warmth dimension scored (M_{warmth}=5.86, SD=0.69) significantly higher than the competence dimension ($M_{competence}$=3.98, SD=0.62, F (1, 120) =330.84, p<0.001). This pointed to the success of the manipulation of type of anthropomorphized images in this experiment. Then a one-way ANOVA conducted for the power perception indicated that the main effect of type of anthropomorphism was not significant (F (1, 118) =0.05, p=0.997>0.05), nor was the interaction effect of type of anthropomorphism and power perception (F (1, 118) =0.05, p=0.833>0.05); only power perception has significant main effect (F (1, 118) =167.76, p<0.001). High power group ($M_{competence}$=5.26, SD=0.79 vs. M_{warmth}=5.29, SD=0.87), low power group ($M_{competence}$=3.05, SD=0.95 vs. M_{warmth}=3.09, SD=1.06), which attests to the effective manipulation of power perception in this experiment.

Purchase intention: A two-way between-subjects ANOVA conducted for the purchase intention returned a significant two-way interaction between power perception and type of anthropomorphism (F (1, 189) =10.57, p<0.01), while the main effect of power perception and that of type of anthropomorphism were not significant (p>0.05). Simple effect analysis showed that individuals with low power perception had higher purchase intentions for warmthth-related anthropomorphized brands than competence-related ones (M_{warmth}=4.58, SD=1.36 $M_{competence}$=4.04, SD=0.64, F (1, 189) =4.18, p<0.05), while those with high power perception had higher purchase intentions for competence-related anthropomorphized brands than warmthth-related ones. ($M_{competence}$=4.40, SD=1.17, M_{warmth}=3.78, SD=1.52, F (1, 189) =6.43, p<0.05). Thus, Hypothesis 1 was again confirmed (see Figure 3).

Mediation analysis. First of all, we tested the mediating role of exchange relationship and communal relationship in the interactive effect of power perception and type of anthropomorphism on purchase intention. Regarding communal relationship, results revealed that in the low power condition, the CI ranged from -1.695 to -0.340, whereas in the

high-power condition, the CI ranged from -0.1309 to 0.0360, providing evidence that communal relationship mediated the interactive effect of low power perception and warmth-related anthropomorphism on purchase intention. That is, Hypothesis 2 was again confirmed. Finally, for exchange relationship, results revealed that in the high-power condition, the CI condition ranged from 0.2815 to 1.1307, whereas in the low-power condition, the CI ranged from-0.074 to 0.1260, providing evidence that exchange relationship mediated the interactive effect of high-power perception and competence-related anthropomorphism on purchase intention. That is, Hypothesis 3 was again confirmed.

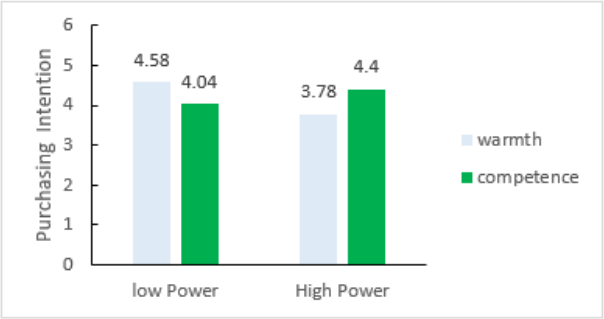


Figure 3. Effect of matching power perception and types of anthropomorphism on purchase intention

In Experiment 2, power perception was manipulated with a different activation method, and new stimuli were used to manipulate the types of anthropomorphism. The results of Experiment 1 were again verified, which boosts the stability and universality of the research conclusions. In the next study, the focus was the boundary conditions for the above effect.

5. Experiment 3

Experiment 3 was designed to further examine the boundary conditions for the effect of matching power perception and type of anthropomorphism. In this experiment, the existing hypotheses were first tested with different experimental stimuli, and consumers' perceived risk was introduced to explore the boundary conditions.

5.1. Design and Procedure

A total of 347 subjects (mean age 19.6; 178 males and 169 females) were randomly assigned to the conditions of a 2×2×2 between-subjects design. The subjects were told that they would participate in two independent, unrelated studies. The task of searching vocabulary and role play were used to activate their power perception. After the manipulation check, they moved on to read the brand advertisements for a smart bracelet. The anthropomorphized cartoon figures in ads were competence-related and warmth-related, respectively. The pictures and description for manipulation of anthropomorphized brands are shown in (Appendix C).

After reading the ads, the subjects read the manipulation materials about perceived risk. Here we chose paint as an experimental stimulus. The preliminary experiment suggested a significant difference in risk perception between the groups with high and low perceived risk ($p < 0.001$). The material for the group with low perceived risk went like this. "Jitong is a paint brand only available in physical specialty stores. According to the spot inspection by the State Environmental protection Administration, the quality of more than 95% of China's paint products is qualified. Their content of harmful substances, such as formaldehyde, benzene and soluble heavy metals, complies with the environmental protection regulations. Most manufacturers in the market have passed the green product certification by the China Certification Committee for Environmental Labeling products". The material for the group with high perceived risk went like this. "Jitong is an Internet brand whose products are only available online. It has no physical store. According to the spot inspection by the State Environmental protection Administration, many paint products in China contain excessive harmful substances like formaldehyde, benzene and soluble heavy metals. Long-term exposure may cause permanent damage to the liver, the kidney and the nervous system, and lead to leukemia, cancer, birth defects, etc. Some manufacturers have not passed the green product certification by the China Certification Committee for Environmental Labeling products." After the subjects read the ads, manipulation check on types of anthropomorphism, purchase intention, and relationship norms were measured (as in Experiment 1) along with perceived risk [40].

5.2. Results and Summary

Manipulation check: First, a repeated measures ANOVA conducted for the types of anthropomorphism indicated that the interaction effect of the grouping of types of anthropomorphism was significant (F (1, 191) =1123.45, p<0.001). For competence-related products, the competence dimension scored ($M_{competence}$=5.42, SD=0.68) significantly higher than the warmth dimension (M_{warmth}=4.05, SD=0.78, F (1, 345) =757.8, p<0.001). For warmth-related products, the warmth dimension scored (M_{warmth}=5.87, SD=0.77) significantly higher than the competence dimension ($M_{competence}$=3.95, SD=0.84, F (1, 345) =417.98, p<0.001). This pointed to the success of the manipulation of type of anthropomorphized images in this experiment. Then an ANOVA conducted for the power perception indicated that only power perception has significant main effect (F (1, 339) =1112.1, p<0.001). Then a manipulation checks on perceived risk was conducted. The results of ANOVA indicated that only perceived risk had significant main effect (F (1, 339) =587.18, p<0.001). To sum up, this experiment was effective in manipulating for both power perception and perceived risk.

Purchase intention. An ANOVA revealed a significant anthropomorphism type by power perception by perceived risk three-way interaction (F (1, 339) =13.37, p<0.001). Specifically, in the low-risk condition, while neither power perception nor types of anthropomorphism had a significant main effect, the interaction between power perception and types of anthropomorphism was significant(p>0.05). Simple effect analysis showed that individuals with low power perception had higher purchase intention for warmth-related anthropomorphized brands than competence-related ones (M_{warmth}=4.88, SD=0.67, $M_{compentence}$=4.26, SD=1.20, F (1, 181) =7.18, p<0.01); individuals with high power perception had higher purchase intention for competence-related anthropomorphized brands than warmth-related ones ($M_{compentence}$=4.79, SD=0.85, M_{warmth}=3.97, SD=1.41, F (1, 181) =12.39, p<0.001). Thus, the first half of Hypothesis 4 was confirmed (see Figure 4).

In the high-risk condition, neither the main effect of power perception nor the interactive effect of power perception and type of anthropomorphism were significant (p>0.05). Only the type of anthropomorphism had a significant main effect

(F (1, 158) =71.07, p<0.001). Regardless of power perception, individuals were all more willing to purchase competence-related anthropomorphized products ($M_{\text{low risk-competence}}$=4.75, SD=0.45, $M_{\text{low risk-warmth}}$=3.19, SD=1.14, $M_{\text{high risk-competence}}$ = 4.61, SD=0.78 vs. $M_{\text{high risk-warmth}}$=3.32, SD=1.60). Hence, the latter part of Hypothesis 4 was confirmed (see Figure 5).

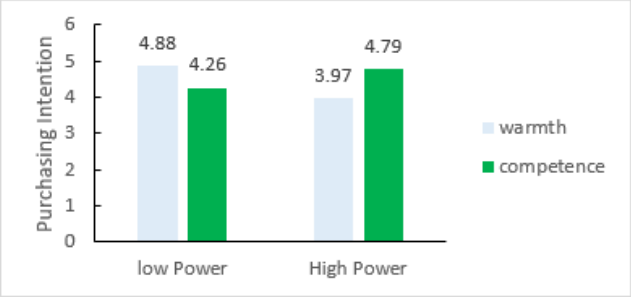


Figure 4. Influence of power perception and types of anthropomorphism on purchase intention at low risk

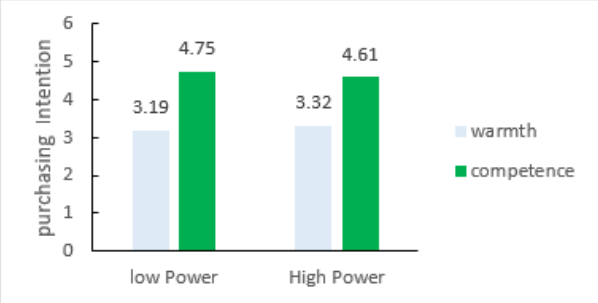


Figure 5. Effect of matching power perception and types of anthropomorphism on purchase intention at high risk

Mediation analysis. First of all, we tested the mediating role of exchange relationship and communal relationship in the interactive effect of power perception and type of anthropomorphism on purchase intention. Regarding communal relationship, results revealed that in the low power condition, the CI ranged from -1.2099 to -0.4426, whereas in the high-power condition, the CI ranged from -0.0686 to 0.1109, providing evidence that communal relationship mediated the interactive effect of low power perception and warmth-related anthropomorphism on purchase intention. That is, Hypothesis 2 was again confirmed. Finally, for exchange relationship, results revealed that in the high-power condition, the CI condition ranged from 0.3285 to 1.0407, whereas in the low-power condition, the CI ranged from-0.0835 to 0.1318, providing evidence that exchange relationship mediated the interactive effect of high-power perception and competence-related anthropomorphism on purchase intention. That is, Hypothesis 3 was again confirmed.

In this experiment, the hypotheses were again supported with new stimuli, and the effect of power perception on purchase intention for anthropomorphized products in different scenarios of perceived risk was further examined. The results showed that perceived risk moderated the interaction between consumers' power perception and types of anthropomorphism in brand evaluations. When perceived risk was low, consumers with low power perception preferred warmth-related anthropomorphized brands, consumers with high power perception preferred competence-related anthropomorphized brands. When perceived risk was high, both groups of consumers preferred competence-related anthropomorphized brands.

6. Summary and Discussion

6.1. General Summary

This paper verifies the mechanism and boundary conditions for interaction between individual power perception and types of anthropomorphism in brand evaluations through three experimental studies. Experiments 1 and 2 activate the individuals' temporary power perception with different control methods, and the types of anthropomorphism were manipulated using different stimuli. They both demonstrate that consumers with low power perception prefer warmth-related anthropomorphized brands, and their matching exposes individuals to more communal relationship and increases their purchasing intention. Consumers with high power perception prefer competence-related anthropomorphized brands, and their matching exposes individuals to more exchange relationship and increases their purchasing intention. Relationship norms play a mediating role in the matching of the two. According to Experiment 3, when perceived risk is low, consumers with low power perception lean towards warmth-related anthropomorphized brands, while consumers with high power perception lean towards competence-related ones. When perceived risk is high, both groups of consumers prefer competence-related anthropomorphized brands.

6.2. Theoretical Contribution

First of all, most of the existing studies focus on whether the existence of anthropomorphism affects consumers and brand evaluations, but few on the specific direction of anthropomorphism. Therefore, we refer to the Stereotype Content Model and classify brand anthropomorphism into warmth-related and competence-related anthropomorphized brands. In this way, when brands are communicating with consumers, they connect and interact with consumers by displaying some unique behavioral characteristics, thus shifting from "it" to "him" in communication and satisfying the emotional experience and communication needs of consumers in social interactions. In addition, this paper finds that consumers' power perception affects their purchasing intention for different types of brand anthropomorphism. The three experiments explore how specific types of anthropomorphism affect consumers' psychology and behaviors. This study enriches the research scope of brand anthropomorphism and provides new and valuable evidence for the Stereotype Content Model in the field of brand.

Secondly, this study explores the internal mechanism and boundary conditions for the effect of matching power perception and types of brand anthropomorphism on purchasing intention. The experiments prove that relationship norms play a mediating role on such effect, which varies depending on the individual's power perception. To be specific, exchange relationship mediates the matching of individuals with high power perception and competence-related anthropomorphized brands while communal relationship modulates the matching of individuals with low power perception and warmth-related anthropomorphized brands. This has broadened the thinking for the follow-up theoretical studies on consumer-brand relationship and offered a new perspective for research into the relationship norm theory and brand marketing research. However, the above relationship norms are restricted by the scenarios.

Under certain situations, the specific relationship norms between consumers and brands will play a role. When the situation changes, the effect of this norm will also change[43]. This paper introduces perceived risk as the boundary condition, which changes the purchase choice of individuals with low power perception so that they show higher purchasing intentions for competence-related anthropomorphized brands, thus expanding the marketing boundary in anthropomorphism studies.

Finally, this study extends the research context of power perception. There is still much room for exploration into the impact of power perception, a major psychological state of individuals, on consumer behaviors. We start such exploration with the matching of power perception and the types of brand anthropomorphism. Furthermore, existing studies on the relationship between power perception and brand anthropomorphism are not clear and specific. For example, power perception boosts people's self-confidence, improves their risk-taking behaviors[6], and reduces risk aversion. Power perception affects consumers' shift in choice of brands[22]. With types of anthropomorphized brands as the breakthrough, we find that people with high power perception have higher intentions to purchase competence-related anthropomorphized brands while those with low power perception have higher purchasing intentions for warmth-related ones. This provides a perspective for future studies on power perception and brand anthropomorphism marketing.

6.3. Practical Implications

First of all, enterprises can portray products with "competent" or "warm" anthropomorphic images based on research into target consumers' power perception. If a brand is positioned as highly efficient, skilled, expert, wise, and powerful, competence-related anthropomorphized images are more suitable. If a brand wants to convey message of sincerity, enthusiasm, thoughtfulness, friendliness and trust, "warmth-related" anthropomorphized images are better. For example, Xiaona and Xiaoice are both smart robots of Microsoft. Xiaona is a personal assistant who understands users' preferences and habits, and makes users' daily task management convenient and efficient. Xiaoice is a smart chat companion who can answer users' questions and have dialogues with them, bringing them entertainment and relaxation. Specific types of brand anthropomorphism help enterprises implement marketing strategies. Specific division of the direction for brand anthropomorphism can not only explain the heterogeneity of consumers in brand marketing, but also facilitate corporate product positioning and image building through segmentation of target consumer groups.

Secondly, power perception offers implications on brands' anthropomorphized marketing. When adopting anthropomorphized images, enterprises should consider consumers' level of power perception and apply appropriate strategies of anthropomorphism for different market segments. Consumers with high power perception prefer competence-related anthropomorphized brands while those with low power perception prefer warmth-related ones. Neither is superior to the other. Suitable marketing strategies of anthropomorphism can be adopted to resonate with different types of consumers. For consumers with low power perception, brands may highlight sincerity, care, friendliness and other warmth-related characteristics in marketing. For those with high power perception, the focus of marketing is ability, efficiency and other competence-related characteristics. In short, enterprises will be able to allocate resources precisely and allow marketing strategies to create greater brand value and enhance brand performance through orientation towards brand anthropomorphism.

Furthermore, the possible impact of perceived risk on the results of strategies of brand anthropomorphism should be considered. The effect of matching power perception and types of anthropomorphism on purchasing intention is only applicable to scenarios with low perceived risk. When perceived risk is high, regardless of power perception, all individuals prefer the competence-related anthropomorphized brands. This provides boundary conditions for enterprises to implement strategies of brand anthropomorphism, especially during the development and promotion of new products. The unfamiliarity and uncertainty of new things means greater perceived risks by consumers. In this case, enterprises can lower consumers' subjective risk by highlighting the "competence" of the anthropomorphized brands.

6.4. Future Research Direction

Despite some shortcomings, this study provides some directions and ideas for future research.

On the one hand, with the widespread use of mobile terminals like smartphones and tablets as well as the application of cloud computing and big data, communication between consumers and anthropomorphized brands is not just two-way, but instant and complex under multiple dimensions and scenarios. Brand anthropomorphism is playing an increasingly important role in the modern market. Then, in a stressful and fast-paced living environment, will consumers rely more on brands to improve their sense of efficacy? Will consumers increasingly see brands as a source of emotional satisfaction? Will the wealthy and high-standard lifestyle prompt people with greater power to seek specific types of brand relationships in the market (for example, consumers are masters and brands are slaves)? If yes, what are the reasons for the differences? How should new challenges and problems confronting consumers and brand anthropomorphism in the context of mobile internet be discussed? This is a direction worth studying in the future.

On the other hand, human-machine interaction requires a good understanding of human cognition, emotions and behaviors besides the progress of robotics[44]. It is found that those who drive anthropomorphized autonomous cars have the greatest trust in cars[6], because those cars seem to be more anthropomorphic and attentive than human drivers or drivers of non-anthropomorphized autonomous cars. Research reveals that, in the interaction between human beings and computers, automatic anthropomorphism is a key variable for trust building and repairing between the two [45]. Anthropomorphized human-machine interaction brings a lot of convenience to people's lives, but there are certain risks. For example, human-machine interaction with a low degree of smart anthropomorphism will stimulate more interaction and connection from individuals. In this case, individuals find themselves more advanced than anthropomorphized machines and capable of controlling the situation. However, when the degree of smart anthropomorphism is high, the machines' ability has surpassed that of human beings, individuals will find their uniqueness threatened. In this case, they will resent, reject and even fear the anthropomorphized smart human-computer interaction. Thus, another direction for future studies is determining an appropriate degree of

brand anthropomorphism to reduce consumers' perception of the risk from anthropomorphized smart human-machine interaction, and enable anthropomorphism play a better service role in the era of smart life.

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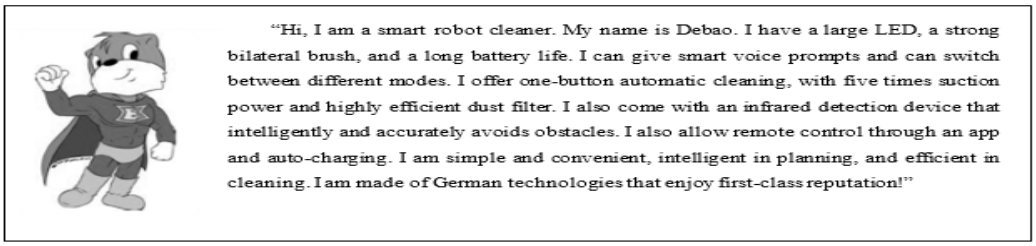
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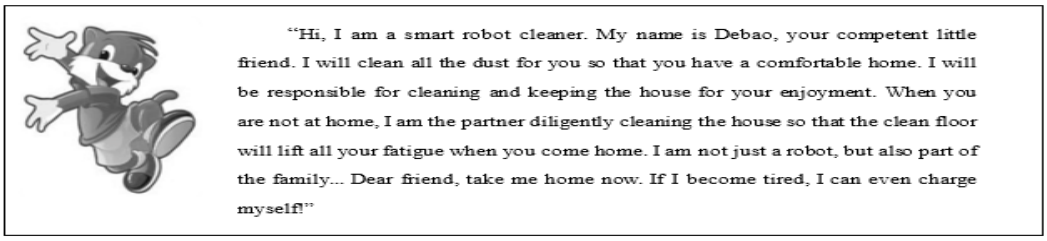
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Appendix

Appendix A

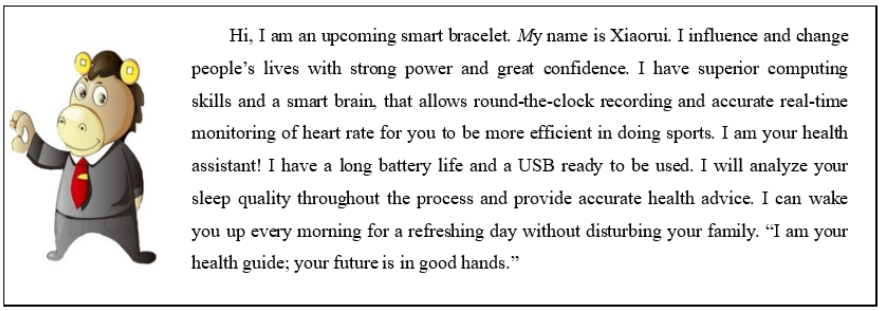
Ad Stimuli Used in the Study 1

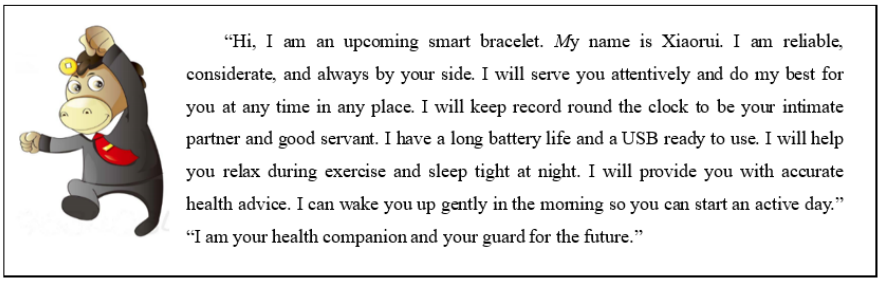




Appendix B

Ad stimuli used in the Study 2





Appendix C

Ad stimuli used in the Study 3



Hi, I am paint expert "Jitong". I have been producing paint for 30 years, with high-end nanotechnology and exclusive double silicone modified paint. I am dedicated to environmental friendliness and tidiness by virtue of choice and premium imported green raw materials and anti-mold and anti-alkali factors. I have excellent quality that allows you to move in immediately after painting. *My* paint effectively covers and is resistant to stain and scrub. I am eco-friendly and guarantee a healthy life.



Hi, I am the paint messenger "Jitong". *My* rich colors will add brilliance to your life and let you enjoy a rainbow at home. I have a neutral smell and can provide you with a green and fresh environment. I am attentive and caring for the health of the family. I am colorful, enduring, beautiful, and fashionable. With me, you will enjoy life and adore your beautiful home. I also have natural bamboo charcoal inside my body.

Dear friend, please allow me to build a comfortable and healthy home with you."