Research on the Influence of Brand Anthropomorphim on Consumer Brand Attitudes

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Abstract. Based on the information fluency theory, this paper explores the influence of the interaction between brand anthropomorphim (competence vs. warmth) and product type (utilitarian vs. hedonic) on consumers' brand attitude and the moderating effect of the level of need for cognition. The results show that: (1) For utilitarian products, the competence brand anthropomorphism has a more positive brand attitude than the warmth brand anthropomorphism. For hedonic products, warmth brand anthropomorphism has a higher brand attitude than competence brand anthropomorphism. (2) In the interaction of brand anthropomorphim and product type on consumer brand attitude, individuals with higher cognitive need level show stronger brand attitude.

Keywords: brand anthropomorphim, product type, need for cognition, brand attitude.

1 Introduction

Did you find out? When you browse the web, the reminder of the bottom of the information has quietly become: "Master, I also have a bottom line"; When you lose your Internet connection, the page will remind you: "Master, I'm lost and trying to reach you." If you observe carefully, you will find that more and more anthropomorphism has appeared in our lives, and has invisibly narrowed the distance between consumers and brands or enterprises.

Look at the successful cases of brand anthropomorphism, for example, Jiang Xiaobai uses the slightly self-deprecating anthropomorphic title "Xiaobai", coupled with the IP image of literary youth, to narrow the distance with young consumers; Jeep's emotional route has shaped the image of a tough man who is fearless of vicissitudes, making consumers feel the brand's historical accumulation and deep tonality. These personifications enable consumers to find emotional resonance and a sense of belonging, associate them with the relevant attributes of the product and enhance brand perception, thus showing a positive brand attitude. However, the word "Panpan" and the cute panda image of Panpan security door make consumers doubt the security properties of its products. With the same use of brand anthropomorphic marketing, why do different types of products show different effects? So, for different products, which brand anthropomorphism can better improve consumers' brand attitude?

With the further research, some scholars divided brand anthropomorphism into competence brand anthropomorphism and warmth brand anthropomorphism according to stereotype content

model, and explored which brand anthropomorphism image is more favored by consumers. However, previous studies only focused on the influence of brand anthropomorphic types on consumers, but ignored the influence of product factors. Based on the existing classification of brand anthropomorphim, this study introduces the product type to further explore the impact of the interaction between brand anthropomorphim and product type on consumers' brand attitude. At the same time, based on the information processing fluency theory, the level of need for cognition is taken into account. This study will help to deepen the research in the field of brand anthropomorphim, and provide suggestions and guidance for enterprises to formulate brand anthropomorphic strategies more targeted.

2 Literature Review and Hypothesis

2.1 The Interaction Between Brand Anthropomorphim and Product Type on Brand Attitude

According to stereotype content model, brand anthropomorphism can be divided into competence brand anthropomorphism and warmth brand anthropomorphism [1]. When adopting the competence brand anthropomorphim, the concepts of confidence, intelligence and efficiency perceived by consumers are consistent with the concepts of technology, function and efficiency of practical products in the scope of semantic association. Correspondingly, when adopting the warmth brand anthropomorphim, the concepts of enthusiasm, kindness and warmth perceived by consumers are consistent with the concepts of ease, pleasure and stimulation of hedonic products in the scope of semantic association. Therefore, when the competence brand anthropomorphim is matched with the utilitarian product, and the warmth brand anthropomorphic is matched with the hedonic product, the information processing process of consumers will be more smooth, the higher the information fluency, the more positive the attitude. Therefore, this study concludes that utilitarian products are matched with competence brand anthropomorphim, and hedonic products are matched with warmth brand anthropomorphim, and have a positive impact on consumers' brand attitudes. Based on this, hypothesis 1 and hypothesis 2 are proposed:

H1: For utilitarian products, compared with warmth brand anthropomorphism, adopting competence brand anthropomorphism can better improve consumers' brand attitude.

H2: For hedonic products, compared with competence brand anthropomorphism, warmth brand anthropomorphim can improve consumers' brand attitude.

2.2 The Moderating Effect of The Level of Need for Cognition

Elaboration Likelihood Model (ELM) points out that after the signal individual receives the information. There are two paths, the central route and the peripheral route, to process information [2]. The former examines, evaluates and processes information in a detailed and rational manner; The latter relies on simple situational factors and surface cues to make subjective inferences. Petty and Cacioppo also pointed out that which path an individual chooses for information processing largely depends on a relatively stable individual trait called "Need for cognition". The cognitive need level is defined as a need to understand and rationalize the world of experience [4]. Individuals with a high level of cognitive need tend to think deeply

about information, actively seek and truthfully respond to information when understanding social events, related stimuli and business relations. In contrast, people with low cognitive need rely more on external cues such as others, heuristic cognition, or social comparison processes.

In the face of different brand anthropomorphic strategies, consumers with high cognitive needs tend to spend more cognitive resources, actively acquire the associated information between brand anthropomorphim and product attributes, and apply it to the corresponding scenarios. However, individuals with a low level of cognitive need are more dependent on other external cues such as the evaluation of others, and their self-formed brand attitudes are relatively unstable. Therefore, the interaction between brand anthropomorphim and product type has a weak effect on consumers' brand attitudes. Based on this, hypothesis 3 is proposed:

H3: In the interaction of brand anthropomorphic type and product type on consumer brand attitude, individuals with high cognitive need level show stronger brand attitude.

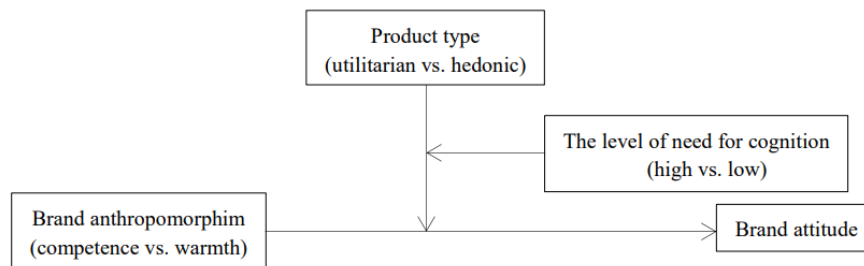The theoretical model is as follows (see Figure. 1).

Fig. 1. Theoretical model.

3 Study 1

In study 1, the intergroup experiment of 2 (brand anthropomorphim: competence vs. warmth) *2 (product type: utilitarian vs. hedonic) was conducted to explore the interaction between brand anthropomorphic types and product types on the influence of consumers' brand attitude, that is, to verify H1 and H2.

3.1 Research Design

In the first step, 45 subjects were recruited to determine the stimuli needed for the experiment. Referring to the existing research [9-10], the final determination of potato chips as hedonic products, mobile phones as real products, and headsets as neutral products.

Secondly, fictitious the mobile phone brand name as "KIKM" and the potato chip brand name as "MUE". Brand names do not exist in the real market, and the pronunciation is not similar to the existing brand names. According to the different characteristics of competence brand anthropomorphim and warmth brand anthropomorphim, different contents are designed, as shown in Table 1.

Table 1. Anthropomorphic manipulation materials for KIKM and MUE.

	KIKM	MUE
Competence	Hello friends, I am "KIKM", XDR display to meet your highest pursuit of visual experience; The tacit cooperation of the three cameras to achieve your shooting needs in various environments, let me help you experience life!	Hello friends, I am "MUE", select and make fine potato slices, potatoes are real materials; High quality fiber to help you sustain energy, let me help you experience life!
Warmth	Hello friends, I am "KIKM", XDR display for you to bring immersive viewing experience; The tacit cooperation of three cameras, for you to capture the beauty of life and moved, let me accompany you to taste life!	Hello friends, I am "MUE", select and make fine potato slices, each one is full of relaxation and enjoyment; A variety of flavors and fragrant, let me accompany you to taste life!

Thirdly, 180 students were recruited to participate in the pre-test, and they were randomly assigned to four independent groups. After reading the materials, the subjects were tested for brand anthropomorphic perception manipulation test (1. I think the brand is capable; 2. I think this brand can make people feel warm, 1= strongly disagree, 7= strongly agree) and product type manipulation test (1=complete utilitarian product, 7=complete hedonic product), and then the subjects' brand cognition and demographic variables were measure [5-7].

The results of 166 valid questionnaires (55% female) showed that the brand anthropomorphism was successfully manipulated. When the type of manipulation was competence, $M_{competence}=4.75>M_{warmth}=3.49$, $F=0.038$, $p<.001$; When the manipulation type is warmth, $M_{competence}=3.47<M_{warmth}=4.91$, $F=0.170$, $p<.001$. The participants' perception of product type also showed significant differences, When the product was potato chips, $M_{hedonic}=4.82>M_{utilitarian}=4.05$, $F=0.101$, $p<.01$; When the product is a mobile phone, $M_{hedonic}=4.53<M_{utilitarian}=5.54$, $F=1.877$, $p<.001$. All subjects were not familiar with the brand names and did not associate with other brands, the virtual brands were successfully built.

3.2 Data Analysis

A total of 280 subjects from different majors in a university in Zhejiang were randomly divided into 4 groups for formal experiment. After reading the experimental materials, the participants were subjected to anthropomorphic perception manipulation test and product type manipulation test, and then their brand attitude [8], brand cognition and demographic variables were measured. 263 valid questionnaires (54% female) were finally collected, ranging in age from 19 to 24 years old.

Reliability and validity analysis.

Cronbach's α coefficient of brand attitude is 0.81, which is greater than 0.7; KMO value is 0.84, which is greater than 0.6; factor load of each item is greater than 0.5; therefore, the questionnaire has good reliability and validity.

Manipulation checks

The results of data analysis showed that the brand anthropomorphic manipulation was successful. When the manipulation type was competence, $M_{competence}=4.46>M_{warmth}=3.54$, $F=0.172$, $p<.001$; When the manipulation type is warmth, $M_{competence}=3.42<M_{warmth}=4.16$, $F=0.170$, $p<.01$. There were also significant differences in the perception of the product type.

When the product was potato chips, $M_{hedonic}=4.73>M_{utilitarian}=3.98$, $F=0.902$, $p<.001$; When the product is a mobile phone, $M_{utilitarian}=5.49>M_{hedonic}=4.36$, $F=0.046$, $p<.001$.

Hypothesis testing.

A 2 (brand anthropomorphim: competence vs. warmth) *2 (product type: utilitarian vs. hedonic) analysis of variance on the brand attitude revealed a significant interaction effect ($F = 21.162$, $p<.001$). As can be seen in Fig. 2, for utilitarian products, the competence brand anthropomorphism ($M=4.06$, $SD=0.91$) had a more positive brand attitude than the warmth brand anthropomorphism ($M=3.54$, $SD=0.96$, $F=0.046$, $p<.01$), hence supporting H1. For hedonic products, warmth brand anthropomorphism ($M=4.26$, $SD=1.30$) had a higher brand attitude than competence brand anthropomorphism ($M=3.42$, $SD=1.43$, $F=0.092$, $p<.001$), so H2 is verified.
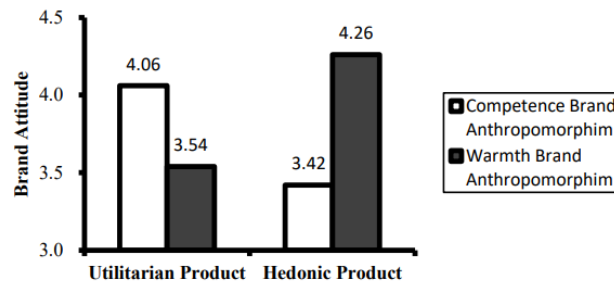
Note: *$p < .05$, **$p < .01$, ***$p < .001$

Fig. 2. The interaction effect of competence brand anthropomorphism (vs. warmth brand anthropomorphism) and product type on brand attitude.

4 Study 2

In study 2, the intergroup factor design of 2 (the level of need for cognition: high vs. low) *2 (product type: utilitarian vs. hedonic) *2 (brand anthropomorphim: competence vs. warmth) was used to test the moderating effect of the level of need for cognition, and to verify H1 and H2 again.

4.1 Research design

A total of 332 subjects from a university in Zhejiang participated in this experiment. Firstly, the participants' cognitive need level was measured, with 9 items being positive statements, such as "I prefer complex problems to simple ones", and 9 items being negative statements, such as "thinking is not interesting to me" (1= strongly disagree, 7= strongly agree) [3]. According to the mean median of the cognitive need level of the subjects, the subjects were divided into a high cognitive need level group (mean >4.16) and a low cognitive need level group (mean <4.16), and then each group was randomly divided into four groups, with a total of eight groups. The situation was introduced in the same way as study 1. Subsequently, the participants were tested for brand anthropomorphic perception manipulation and product type perception manipulation, and finally their brand attitude, brand perception and demographic variables were measured.

4.2　Data Analysis

After excluding invalid questionnaires, 300 valid questionnaires (61% female) were collected, ranging in age from 19 to 24 years old.

Reliability and validity analysis.

Cronbach's α coefficients of brand attitude and cognitive need level are 0.89 and 0.82, greater than 0.7; KMO values are 0.80 and 0.85, greater than 0.6; factor load coefficients of each item are greater than 0.5, so the questionnaire has good reliability and validity.

Manipulation checks

First, the results of ANOVA showed that there were significant differences between the participants with high cognitive need level (M= 4.88, SD= 1.17) and those with low cognitive need level (M=3.57, SD= 1.10, F=16.125, p<.001). Secondly, the manipulation of brand anthropomorphic was successful. When the manipulation type was competence, $M_{competence}$=4.75>M_{warmth}=4.10, F=0.038, P<0.01; When the manipulation type is warmth, $M_{competence}$=4.27<M_{warmth}=4.91, F=0.170, P<0.01; The subjects' perception of product type also showed significant differences. When the product was potato chips, $M_{hedonic}$ =4.92>$M_{utilitarian}$=3.25, F=3.084, p<.001; When the product is a mobile phone, $M_{hedonic}$ =4.53<$M_{utilitarian}$=5.54, F=1.877, P<.001.

Hypothesis testing.

The results of two-factor ANOVA showed that product type and brand anthropomorphic type had a significant interaction effect on consumer brand attitude (F=26.943, p<.001). For utilitarian products, compared with the warmth brand anthropomorphism (M=3.55, SD=0.97), consumers were more likely to treat the competence brand anthropomorphism (M=4.03 SD=0.97, F=0.448, p<.001) showed a more positive brand attitude. For hedonic products, consumers had a stronger attitude toward the brand with warmth anthropomorphism (M=4.25, SD=1.30) than that with competence anthropomorphism (M=3.43, SD=1.54, F=3.084, p<.001). So H1 and H2 are verified again

Taking brand attitude as the dependent variable, the results of three-factor ANOVA showed that the level of need for cognition, brand anthropomorphism and product type had significant interaction on brand attitude (F=6.085, p<.01). It can also be seen from Fig. 3 and Fig. 4 that in the process of matching product type with brand anthropomorphic type, individuals with high cognitive level show a stronger difference in brand attitude compared with individuals with low cognitive level.
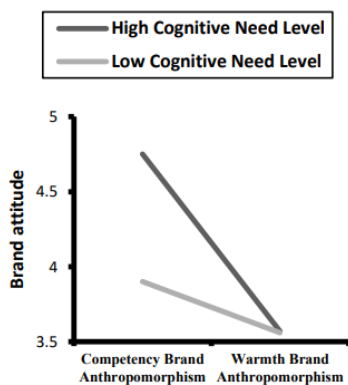
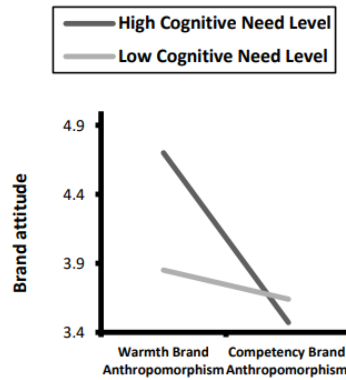**Fig. 3.** Graph of estimated marginal mean value of brand attitudes for utilitarian products.

Fig. 4. Graph of estimated marginal mean value of brand attitudes for hedonic products.

5 Study 3

This part is to further enhance the accuracy of the research. The specific procedure is the same as study 1. The difference is that the neutral product "headset" identified in the pre-test was selected, and the headset are described differently according to the different characteristics of the product type and the anthropomorphic brand.

5.1 Research Design

The fictitious headset brand name "KQ" does not exist in the real market, and the pronunciation has no resemblance to the existing watch brand name. Different experimental materials are designed according to different characteristics of product type and brand anthropomorphim, and the specific requirements are the same as that of study 1.

A pre-test was conducted on 120 subjects (46% female) recruited on the Credamo platform, and they were randomly assigned to 4 independent groups, and the specific procedure was the same as the study 1. The analysis of variance results showed successful manipulation of brand anthropomorphism and product type.

5.2 Data Analysis

A total of 234 subjects from different majors in a university in Zhejiang were randomly divided into 4 groups for formal experiment, and 226 valid questionnaires (56% female) were finally collected, ranging in age from 18 to 25 years old.

**Reliability and validity analysis.**

Cronbach's α coefficient of brand attitude are 0.83, greater than 0.7; KMO value is 0.74, greater than 0.6; factor load of each item is greater than 0.5; therefore, the questionnaire has product reliability and validity.

Manipulation checks

The results of data analysis showed that the brand anthropomorphic manipulation was successful. When the manipulation type was competence, $M_{competence}$=4.81> M_{warmth}=3.63, F=0.037, p<.001; When the manipulation type is warmth, $M_{competence}$=4.53<M_{warmth}=5.20, F=3.065, p<.01. There were also significant differences in the perception of the product type. When the headset was manipulated into a utilitarian product, $M_{hedonic}$=4.64<$M_{utilitarian}$=4.88, F=3.023, p<.05; When the headset is manipulated into a hedonic product, $M_{utilitarian}$=4.43< $M_{hedonic}$ =5.01, F=0.026, p<.001.

Hypothesis testing

A 2 (brand anthropomorphim: competence vs. warmth) *2 (product type: utilitarian vs. hedonic) analysis of variance on the brand attitude revealed a significant interaction effect (F = 6.43, p<.05). As can be seen in Fig.5, for utilitarian products, participants had a more positive attitude toward the product presented in competence brand anthropomorphism (M=4.74, SD=0.95) as compared to the product presented in a warmth brand anthropomorphism (M=4.10, SD=1.07, F=0.099, p<.01), hence supporting H1. However, for hedonic products, participants had a more positive attitude toward the product presented in warmth brand anthropomorphism (M=4.76, SD=1.18) as compared to the product presented in competency brand anthropomorphism (M=3.49, SD=1.14, F=0.232, p<.001), so H2 is verified again.
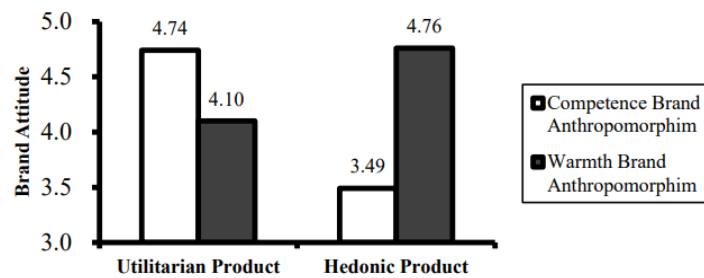
Note: *p < .05, **p < .01, ***p < .001

Fig. 5. The interaction effect of competence brand anthropomorphism (vs. warmth brand anthropomorphism) and product type on brand attitude.

6 Conclusions

Based on the information processing fluency theory, this study explores which product types are suitable for different types of brand anthropomorphism. First, it is found in study 1 that brand anthropomorphism and product type have significant interaction on consumers' brand attitude. Specifically, competence brand anthropomorphism for utilitarian products can better enhance consumers' brand attitude, while warmth brand anthropomorphism for hedonic products can better enhance consumers' brand attitude. Secondly, study 2 examines the moderating effect of the level of need for cognition, that is, compared with individuals with low cognitive need level, consumers with high cognitive need level show a stronger degree of effort in the matching process between brand personification and product type, and thus show a stronger brand attitude. When developing the brand anthropomorphism, the marketing

personnel of enterprises should take into account the specific types of products and recognize the level of cognitive needs of consumers, and do relevant market research in advance.

There are still some limitations in the research. First, the participants are undergraduate students or above, so the sample may lack certain representativeness. Future research can expand the coverage of the participants and enhance the accuracy of the research results. Secondly, this study determines the required experimental materials based on the results of interviews with school students. In future studies, more representative samples and more generally representative products can be selected. Finally, this study explores the moderating effect of the level of need for cognition, and future studies can further explore more specific role boundaries based on other characteristics.

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