

The Effect of Anthropomorphic Communication of Ugly Produce on Consumer Attitudes

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Abstract. Nowadays, the global food waste problem is getting more and more serious, and one of the important reasons is that consumers reject ugly produce. With the concern for sustainability, scholars have begun to explore interventions that promote the marketing of ugly produce. The purpose of this paper is to investigate the effect of anthropomorphic communication of ugly produce on consumer attitudes and to explore the psychological mechanisms of processing fluency. This paper recruited 240 participants and used SPSS for data analysis. According to the conclusion of SPSS analysis, the experimental study finds that when anthropomorphic communication is used in the promotion of ugly produce, consumer processing fluency is increased, which can improve consumer attitudes, and subjective norms can play a moderating role in this main effect. This paper can also help governments and retailers to design and implement promotional advertisements and campaigns to reduce food waste and promote food sustainability.

Keywords: Food waste, Ugly produce, Anthropomorphic communication, Processing fluency

1 Introduction

Ugly produce is produce that deviates significantly from the natural aesthetic appearance of standard produce, but has no damage or disease that could affect safety, taste or nutrition^[1]. These produces are discarded by consumers because of their imperfect or ugly appearance, and the "stigmatization" of ugly produce results in food waste. According to surveys, 1.3 billion tons of food waste is left behind or discarded each year during food production, distribution and consumption, and 45% of this food waste is edible produce such as vegetables and fruits. An important reason for consumers' reluctance to purchase ugly produce is consumers' subjective perception of appearance, which can influence their judgment of food quality and thus their purchasing decisions^[2]. In response to food waste caused by ugly produce, organizations such as the Food and Agriculture Organization (FAO) and the European Union have put forward initiatives to ban food waste, so many countries and companies have launched campaigns to promote ugly produce. The academic community has been exploring in-depth and proposing some interventions to help promote the sale of ugly produce. But these interventions are usually either lowering the value of ugly produce or the cost of intervention is high. In addition, less research has been done on the underlying psychological mechanisms of consumers' rejection of ugly produce, which may reduce the effectiveness of interventions.

Therefore, this study suggests that anthropomorphic communication of ugly produce can improve the processing fluency of consumers and thus improve their attitudes. Moreover, the subjective norms as the moderating variable. In this paper, SPSS is used to analyze the data, and the corresponding conclusions are drawn.

2 Theoretical background

2.1 Anthropomorphic communication

Anthropomorphic communication is defined as a product or brand that communicates with consumers in a person-to-person communication mode. When interacting with consumers, anthropomorphic communication adds irrelevant information, that is, the communication content contains information that is not relevant to the product or brand. When buying ugly produce, consumers are often biased and hold negative attitudes towards them^[3]. As a cost-effective way, anthropomorphic communication can make consumers empathize with ugly produce, identify the plight of ugly produce, and trigger more empathy of consumers, improve consumer attitudes^[4]. Thus, we propose that.:

H1: The anthropomorphic communication of ugly produce has a positive impact on consumer attitudes.

2.2 Processing fluency

Processing fluency refers to the subjective feeling of ease or difficulty that consumers have in processing the stimulus itself or the information contained in it during the decision-making process^[5]. Because consumers are not familiar with ugly produce, it is difficult to understand that the ugly produce is usually healthy and sustainable, consumers face ugly produce will use more cognitive resources to identify. It has been found that when advertisements use anthropomorphic communication, consumers are more likely to understand the product information and use less cognitive resources^[6]. This is because anthropomorphic communication contains a large amount of human language, which can effectively activate the individual's perception of human characteristics, the product analogy to consumers familiar with the human^[7], so as to improve the processing fluency of consumers. When the consumer's processing fluency is higher, the information processing feeling more correct, and then make the evaluation and purchase decision-making is more positive. So, we hypothesize the following:

H2: Processing fluency mediates anthropomorphic communication of ugly produce and consumer attitudes.

2.3 Subjective norm

Subjective norms refer to the attitudes and thoughts of others perceived when an individual intends to engage in a certain behavior, and internalize the attitudes and thoughts of others into their own behavioral norms to constrain and influence an individual's behavioral intention^[8]. Because of serious food waste, the United Nations has set a sustainable target on reducing food waste. Many studies have shown that the use of normative influences can influence consumer attitudes and behavior towards sustainable consumers. While buying ugly produce helps to reduce food waste, thereby reducing the consumption of natural resources, ugly produce can be

considered sustainable food^[9]. Therefore, under the social pressure of sustainable development, consumers with high subjective norms have a more positive attitude towards ugly produce. Thus, this study proposed the following hypothesis:

H3: Subjective norms play a moderating role in the anthropomorphic communication of ugly produce and consumer attitudes.

2.4 Model construction.

Based on the previous literature review, the research model shown in Figure 1 is proposed in this paper.

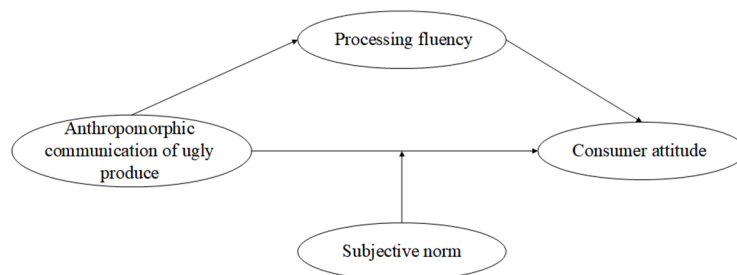


Fig. 1. Research model

3 Methodology

3.1 Procedure

In this study, naturally ugly strawberry is chosen as the experimental stimuli. Participants were asked to imagine going to a supermarket to buy fruits and vegetables and then finding some ugly strawberries on the fruit aisle with a corresponding slogan next to the strawberries. Picture of the ugly strawberry is shown to consumers during the experiment. In the anthropomorphic communication condition, the first-person pronoun was used in the slogan next to the ugly strawberry which reads "No matter how many little horns I have on my head, I will give you the sweetest and most beautiful memories. Take me home with you!". Under the condition of non-anthropomorphic communication, the tagline next to the ugly strawberry uses the third-person pronoun, which reads "The unevenly shaped strawberry is still sweet, soft and juicy, and a bite of it will leave your lips tingling! Come and buy some strawberries to take home." In both conditions, the same picture of ugly strawberry was used. Consumers were then asked to complete measures of consumer attitudes, processing fluency, subjective norms, and demographic information.

3.2 Measures

To check the manipulation of consumer attitudes, nine items were adopted from studies by Xu et al.^[3] (Cronbach's $\alpha = 0.95$). To check the manipulation of processing fluency, four items were adopted from studies by Graf et al.^[10] (Cronbach's $\alpha = 0.86$). To check the manipulation of subjective norms, three items were adopted from studies by Wong et al.^[11] (Cronbach's $\alpha =$

0.90). These items all use seven-point Likert scale, 1 = “completely disagree,” and 7 = “completely agree”.

4 Results

4.1 Participants

Two hundred and forty participants were recruited online, and excluding 12 participants who had not purchased ugly produce, two hundred and twenty-eight valid participants were recruited, with an effective rate of 95%. After completing the questionnaire, these participants would receive a certain cash reward.

4.2 Hypothesis testing

Consumer attitudes. We used independent samples t-tests in SPSS to verify the effect of anthropomorphic communication of ugly produce on consumer attitudes. The results showed that anthropomorphic communication had a significant positive effect on consumer attitudes ($M_{\text{non-anthropomorphic communication}} = 4.03$, $SD = 1.39$; $M_{\text{anthropomorphic communication}} = 5.08$, $SD = 1.08$; $T = 6.40$, $p = 0.000$).

Mediating effect of processing fluency. To investigate the mediating role of processing fluency, a mediating analysis was performed using SPSS according to Hayes (2013, Model 4) with a sample size of 5000 and a 95% confidence interval. It was found that the indirect effect of processing fluency was significant ($\beta = 0.41$, $SE = 0.11$, $LLCI = 0.21$, $ULCI = 0.66$). This result confirms the mediating role of processing fluency.

Moderating effect of subjective norms. Model 1 in SPSS was selected for moderated analysis according to the Bootstrap method proposed by Hayes with a sample size of 5000 and a confidence interval of 95%. The resulting data are shown in Table 1. The moderating effect of subjective norms between anthropomorphic communication of ugly produce and consumers was significant ($LLCI = -0.45$, $ULCI = -0.09$, excluding 0), and subjective norms weakened the positive effect of anthropomorphic communication on consumer attitudes ($\beta = -0.27$).

Table 1. The moderating effect of subjective norm

Regression equation		Global FIT Index				Significance of regression coefficient			
Result variable	Predictive variables	R	R ²	F	p	B	t	LLCI	ULCI
Consumer attitudes	Anthropomorphic communication	0.75	0.56	39.97	0.000	0.51	3.92	0.25	0.76
	Subjective norms					0.55	11.83	0.46	0.64
	Anthropomorphic communication* Subjective norms					0.27	3.02	0.45	0.09

5 General discussion

5.1 Conclusion

Our hypothesis is confirmed by the results of the above experiments and the SPSS analysis. The experimental results indicate that anthropomorphic communication can improve consumer attitudes toward ugly produce, and this effect can be partially mediated by processing fluency. In addition, when consumers' subjective norms are high, the positive effect of anthropomorphic communication of ugly produce on consumer attitudes is diminished.

5.2 Practical implications

First, according to SPSS, the results of this study suggest that anthropomorphic communication can be effective in improving consumer attitudes toward ugly produce. Therefore, retailers and advertisers can add taglines containing anthropomorphic communication to ugly produce advertisements to increase sales of ugly produce. For example, in the ads of ugly produce, a dialog box is set next to the ugly produce to let the ugly produce recommend themselves in a human tone, and human emotions can be incorporated in them to make consumers resonate and bring them a smooth experience in processing product information to promote the sales of ugly produce.

Second, because consumers have social attributes, they will be influenced by the surrounding people and policies in the process of consumption decision. Therefore, the government can promote sustainable consumption and food waste through multimedia channels; and it can organize some experts to give lectures and propaganda so that consumers with strong subjective norms can improve their attitudes toward ugly produce on their own and promote their purchasing behavior. For consumers with low subjective norms, experts can use anthropomorphic communication and other methods to improve consumer attitudes in their promotion.

5.3 Limitations and future study

First, this study only researched ugly produce, and did not classify them according to the degree of ugliness. Therefore, in future research, we can divide produce into ugly shapes and further study the impact of anthropomorphic communication on consumer attitudes.

Second, this study is a situational experiment, which asks consumers to imagine that they are in a real shopping environment. Therefore, in future studies, we can try to conduct field studies in real shopping environments (for example, supermarkets, farmers' markets) or in virtual reality stores.

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