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Citation:

Ye, T and Mattila, A and Dai, S (2022) The Impact of Product Name on Consumer Responses to Meat Alternatives. International Journal of Contemporary Hospitality Management. ISSN 0959-6119  
DOI: <https://doi.org/10.1108/IJCHM-01-2022-0066>

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Document Version:

Article (Accepted Version)

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# The Impact of Product Name on Consumer Responses to Meat Alternatives

## Abstract

**Purpose** – With the recent surge of plant-based menu items, it is critical to understand how to effectively communicate such products to consumers. This study examines the impact of various descriptive names on consumers' responses to novel meat alternatives in China, one of the emerging yet unexplored markets.

**Methodology** – Two studies were conducted using a single factor (descriptive name: “*Renkao Rou (artificial meat)*” vs. “*Sushi Rou (vegetarian/vegan meat)*” vs. “*Zhiwu Rou (plant-based meat)*”) between-subjects experimental design.

**Findings** – Study 1 shows that “*Sushi Rou*” and “*Zhiwu Rou*”, triggering more positive name associations, led to higher future consumption intention compared to “*Renkao Rou*”. A qualitative analysis demonstrates the differences in the name associations. Study 2 replicates the naming effect and examines the role of specific product attributes. Perceived health, naturalness and novelty are the main drivers of favorable responses to “*Zhiwu Rou*” (vs. “*Renkao Rou*”), while perceived health, taste and naturalness mediate the positive effect for “*Sushi Rou*” (vs. “*Renkao Rou*”).

**Practical implications** – Food service operators interested in introducing meat alternatives in China should carefully choose the product name to attract specific segments. International chains should consider cultural norms when expanding to emerging markets.

**Originality** – The study is the first to reveal the product naming effect on meat alternative products from the perspective of marketing communications. It contributes to a deeper understanding of the underlying mechanism driving Chinese consumers' responses.

**Keywords** Meat alternative, name association, product attribute, SRT, SOR model, behavioral intention

## 1. Introduction

Meat analogues (or plant-based meats) are gaining popularity, thus driving consumers to reduce their animal product consumption for environmental, public health and ethical concerns (Michel *et al.*, 2021; Tziva *et al.*, 2020). A recent report shows that the global market for plant-based meat is estimated at USD 4.3 billion in 2020 and is projected to reach USD 8.3 billion by 2025, translating to an average annual growth rate of 14.0% during the forecast period (Markets and Markets, 2020). While traditional vegetarian foods target particular segments with dietary constraints (i.e., vegetarians and vegans), current meat analogue products aim to reach a much wider consumer market by imitating the sensory properties of meat, including taste, smell, texture, and appearance (Ismail *et al.*, 2020; Ye and Mattila, 2021). Leading food manufacturers (e.g., Impossible Foods and Beyond Meat) have developed a new generation of plant-based meat alternatives in a “biomimicry” approach to better satisfy meat eaters (Good Food Institute, 2020). Moreover, restaurant chains have launched a variety of novel plant-based menu items worldwide (e.g., Burger King’s Impossible Whopper, and Starbucks’s Impossible Breakfast Sandwich).

Recent research has examined consumer attitudes and acceptance of this new generation of meat alternatives (Onwezen *et al.*, 2021; Zhang *et al.*, 2021). The findings suggest that consumers are hesitant to choose plant-based meat alternatives (Michel *et al.*, 2021; Slade, 2018). Important barriers include negative sensory associations, higher prices, unfamiliarity, food neophobia, and meat attachment (Bryant *et al.*, 2019; Hwang *et al.*, 2020; Michel *et al.*, 2021). However, research examining the effectiveness of various market entry strategies and marketing communications is scant (Onwezen *et al.*, 2021). For example, how might the name used to introduce a novel meat alternative influence consumers’ perceptions and behavioral intentions? Furthermore, most of the work has focused on Western cultures such as the United States and Europe, leaving emerging markets relatively unexplored (Liu *et al.*, 2021). Notably, while China is gaining increasing attention as one of the most important potential future markets (Bloomberg Businessweek, 2021), it is unclear whether prior findings from the West can be extrapolated to Chinese consumers (Liu *et al.*, 2021).

The present research aims to address these gaps by investigating how descriptive names influence Chinese consumers’ perceptions of meat alternative and their behavioral intention. We focus on the name because it is one of the key attributes in delivering information on new

products (Chung and Eoh, 2019), thus influencing consumer evaluations and first impressions (Meiselman and Bell, 1991). Experiment 1 examines the overall valence of name associations and offers qualitative insight into the meaning of name associations. Experiment 2 provides a deeper understanding of the process by further examining the role of specific product attributes (healthy, tasty, natural, environment- and animal-friendly, and novel) on consumers' propensity to try meat alternatives. The findings contribute to previous literature on consumer acceptance of meat alternatives and offer implications for food service businesses interested in introducing such novel products in China.

## **2. Literature review**

### *2.1 The importance of naming*

Previous research demonstrates that product names and descriptions can affect product evaluations and consumers' consumption preferences (Bryant and Barnett, 2019; Kronrod *et al.*, 2021; Papies *et al.*, 2020). For example, menu labels influence the perceived authenticity of foreign dishes (Meiselman and Bell, 1991). Framing the same dish as pasta versus a salad changes perceived healthfulness and taste (Irmak *et al.*, 2011). Giving vegetable dishes figurative names (e.g., Tree of Life versus Steamed Broccoli) or using stimulation-based descriptions (e.g., descriptive words that evoke mental imagery of eating the food) for plant-based foods makes them more attractive (Kronrod *et al.*, 2021; Papies *et al.*, 2020). Moreover, in the US context, Bryant and Barnett (2019) show that calling in vitro meat "lab-grown meat" results in more negative consumer responses than "clean meat", since the former highlights the unnaturalness of the novel meat product while the latter implies dirtiness of conventional meat. However, they didn't examine if the name influences specific product attributes that can drive consumers' intention to try meat alternatives (e.g., taste, health, sustainability; Bryant *et al.*, 2019). Moreover, in vitro meat is not currently available to consumers.

In this paper, we examine whether different name descriptors influence Chinese consumers' responses to meat alternatives. We draw from the Social Representation Theory (SRT) (Moscovici, 1981) and the Stimulus-Organism-Response (S-O-R) Model (Mehrabian and Russell, 1974) to gain a deeper understanding of the underlying processes.

### *2.2 Theoretical framework*

The SRT depicts that social representations (SR), a system of socially constructed values, ideas, beliefs, and practices, help people understand new and unfamiliar things (Moscovici, 1981). The formation of SR involves two processes: anchoring the unfamiliar to a familiar reference point and transforming abstractions into something concrete and communicable through objectification such as metaphors and icons (Moscovici, 1981). To study SR, the “free word association” task (FWA) (Donoghue, 2000) is one of the most used techniques, asking participants to associate some words with a presented stimulus. This allows indirect access to people’s thoughts, values, beliefs, feelings, and attitudes (Will *et al.*, 1996). In the context of food consumption, SRT has been used to understand consumers’ willingness to try novel products (Bäckström *et al.*, 2003; Marcu *et al.*, 2015). Moreover, the associations that first come to mind are highly relevant to the subsequent choice decision (Roininen *et al.*, 2006). The current study examines the effect of product names as anchoring and how the name associations influence Chinese consumers’ responses to meat alternative products.

The Stimulus-Organism-Response (S-O-R) Model (Mehrabian and Russell, 1974) suggests that an environmental *stimulus* provokes people’s emotional and cognitive conditions (*organism*), resulting in certain behavioral outcomes (*response*). It can be applied to examine various stimuli (e.g., tangible and intangible cues), organisms (e.g., feeling, perception, judgment, and thinking), and responses (e.g., intention, behavior) (Jacoby, 2002). There is plenty of empirical evidence showing the success of the S-O-R model in explaining the impact of environmental cues such as the retail environment (Chang *et al.*, 2011), customer interaction cues (Lin *et al.*, 2020), and food prices (Hempel and Hamm, 2016) on consumer responses. The current study focuses on the product name as a *stimulus* that influences behavioral *responses* to plant-based meat products since product names can shape consumers’ first impressions (Hillenbrand *et al.*, 2013). Moreover, we investigate the underlying role of name associations and product attributes as *organisms*.

### 2.3 Consumer response to meat alternatives

Although the plant-based meat sector is undergoing rapid growth, there is scant research examining the most effective labeling for such products. While two market surveys with US consumers reveal higher ratings for products labeled as “plant-based” than those labeled as “vegan” or “vegetarian” (Good Food Institute, 2016; Watson, 2018), another survey

demonstrates that the descriptor terms (“vegan”, “plant protein”, “meatless”, and “plant-based”) of a plant-based burger had minimal impact on US consumers’ purchase intent (Szejda, 2019). These mixed findings indicate that further research is needed. Moreover, these findings are from nonacademic reports, thus failing to provide a comprehensive understanding of the naming effect.

The present study examines three different names in the Chinese context: “人造肉 *Renzao Rou*” (artificial meat), “素食肉 *Sushi Rou*” (vegetarian/vegan meat), and “植物肉 *Zhiwu Rou*” (plant-based meat). These names were selected with two main criteria adapted from Bryant and Barnett (2019). First, these labels have been used for introducing plant-based meat products by companies, advocacy groups, and/or the media. Second, the three names are conceptually different, enabling us to compare how the name (external stimulus) activates different associations and perceptions (internal processes), leading to more or less favorable behavioral intentions (response). Based on STR, names are often socially constructed with different meanings (Moscovici, 1981). Accordingly, we expect that the three labels will activate different associations in Chinese consumers’ minds, and therefore, influence their behavioral intentions.

Specifically, “人造肉 *Renzao Rou*” highlights that the new product is developed by technology rather than occurring naturally. Explicitly expressing innovation and high-tech, this term may attract certain groups such as neophiliac consumers who actively seek novel foods (Veeck, 2010). However, prior research shows that lack of perceived naturalness is a strong barrier to consumers’ acceptance of food-related technologies such as GM food, food additives, and cultured meat (Roman *et al.*, 2017; Siegrist and Sütterlin, 2017). In the context of plant-based meat, we expect that the name “人造肉 *Renzao Rou*” will similarly lead to more negative outcomes due to its emphasis on technology.

“素食肉 *Sushi Rou*”, which can be interpreted as vegetarian or vegan meat, may have different social meanings in Western and Chinese cultures. For example, research in the UK and the US suggests that vegetarians and vegans, especially those motivated by environmental concerns or animal rights, are often stereotyped negatively and rated with lower social attractiveness (De Groot *et al.*, 2021; MacInnis and Hodson, 2017). Such a stigma is an important barrier inhibiting Americans’ dietary shifts towards a more plant-based diet (Markowski and Roxburgh,

2019). In contrast, vegetarianism has a long tradition in the Chinese culture, often associated with religious beliefs (e.g., Buddhism and Daoism) rather than environmentalism and animal rights advocates (CAO, 2018). Moreover, vegetarian cooking is widespread in China, not only practiced in temples but also by the general population (CAO, 2018). Although evidence from the West suggests a negative effect of using “vegetarian” or “vegan” labels (Good Food Institute, 2016; Wise and Vennard, 2019), we propose that this might not happen in China. Moreover, due to the popularity of vegetarian cuisine and traditional non-meat dishes, this term may evoke a sense of familiarity, which has been shown to facilitate trials of meat alternatives (Hoek *et al.*, 2011). Thus, the name “素食肉 *Sushi Rou*” is likely to produce more positive outcomes among Chinese consumers.

Lastly, the name “植物肉 *Zhiwu Rou*” emphasizes the ingredients of the new product (e.g., made from plants). Whereas vegetarian and vegan often reflect a philosophy of living based on environmental protection and/or avoiding animal cruelty, the term plant-based usually depicts a diet choice (i.e., mainly eating foods that originate from plants) (Richards, 2021). Prior research suggests that Western consumers tend to show positive attitudes toward plant-based diets and associate the term “plant-based” with being nutritious and natural (de Boer and Aiking, 2017; Van Loo *et al.*, 2017). In China, the term is relatively new and often used by Western brands (e.g., plant-based meat producers such as Beyond Meat and restaurant chains such as KFC). Therefore, further investigation is necessary to uncover Chinese consumers’ perceptions of this name label.

Previous research shows that the valence of the word association accounted for the observed differences in consumers’ responses to in vitro meat framed by different names (Bryant and Barnett, 2019). Similarly, we expect that the overall positive valence of the name association will mediate the effect of the product name on individuals’ intention to try meat alternatives. Specifically, we predict that “人造肉 *Renzaou Rou*” will result in more negative associations and lead to the least favorable behavioral intention. However, it is uncertain whether “素食肉 *Sushi Rou*” or “植物肉 *Zhiwu Rou*” will perform better.

**H1.** The product name will influence consumers’ behavioral intention toward meat alternatives.

**H2.** The positive valence of the name associations mediates the effect of the product name on consumers' behavioral intentions.

To gain a deeper understanding of the underlying mechanisms behind the naming effect, we further investigate the role of specific product attributes. Previous research suggests that concerns for the environment, animal care, and health are important drivers for developing meat substitutes (Bryant *et al.*, 2019; Ismail *et al.*, 2020). However, negative taste expectations remain a challenge in consumers' acceptance of plant-based meat alternatives (Michel *et al.*, 2021; Slade, 2018). Moreover, perceived naturalness, identified as a major barrier to consumers' acceptance of food-related technologies (Roman *et al.*, 2017; Siegrist and Sütterlin, 2017), may also play a role in consumers' willingness to try meat alternatives. We consider novelty as another product attribute relevant in our study context since novelty-seeking is a significant motive for trying new and less familiar foods (Siegrist, 2008; Tan *et al.*, 2015). It is evident that attribute-level perceptions of meat alternatives play a role in driving consumers' purchase intention (Bryant *et al.*, 2019; Michel *et al.*, 2021). However, it is unknown whether consumer evaluations of food attributes (as organisms) are influenced by product name (as stimuli) and if so, which attributes drive subsequent behavioral intentions (as a response). Accordingly, we propose the following research questions:

**Q1.** How will product name influence consumers' perceptions of meat alternatives (i.e., health, taste, naturalness, environment- and animal- friendliness, and novelty)?

**Q2.** Which product attribute(s) will explain the effect of a descriptive name on consumers' behavioral intention?

### **3. Study 1**

The purpose of Study 1 is to test the effect of the product name on individuals' behavioral intention as well as the mediating role of the valence of the name association. In addition, it includes a qualitative analysis of the associations to provide initial insights into the underlying role of product attributes.

#### *3.1 Method*



Study 1 utilized a single-factor experimental design. Participants were randomly assigned to one of the three conditions. In each condition, one of the three proposed names was used for the meat alternative: 1) “*Renzaou Rou*” (artificial meat), 2) “*Sushi Rou*” (vegetarian/vegan meat), and 3) “*Zhiwu Rou*” (plant-based meat). Data were collected via a paper-pencil survey on a university campus in Southeastern China by three trained research assistants from September 21<sup>st</sup> to 30<sup>th</sup> in 2020. We randomly selected undergraduate classrooms and asked if the students were interested in voluntarily participating in a study about food innovation. Individuals who accepted the invitation filled out the questionnaire. A final sample was composed of 183 participants (55% female; mean age = 20.3).

First, participants completed a word association task following the procedures adopted from previous studies (Bryant and Barnett, 2019; Roininen *et al.*, 2006). Specifically, they were shown the product name and asked to write down four words, phrases, thoughts, feelings, or images that came to their mind. Then, they rated each association on a 7-point scale (1 = very negative, 7 = very positive). The name association positivity index was computed by averaging the four association ratings. After that, participants were shown the description (adapted from Bryant *et al.*, 2019) whereby [X] was replaced by the assigned name: ‘[X] is a food innovation. It is designed to directly replace animal meat by imitating the taste, texture, and appearance of animal meat. It contains no animal ingredients, and the production process does not involve raising and slaughtering farm animals.’ Participants then indicated their behavioral intention assuming that dishes made with [X] are available on restaurant menus, with four items adapted from Bryant *et al.* (2019) (i.e., “How likely are you to try these dishes/purchase these dishes regularly/eat these dishes as a placement for conventional meat dishes/pay a higher price for these dishes than conventional meat dishes?” from 1 = very unlikely to 7 = very likely;  $\alpha = 0.77$ ).

### 3.2 Results

*Behavioral intention.* A one-way ANOVA reveals a significant effect of product name on behavioral intention ( $F(2, 180) = 7.39, p = 0.001$ ). Post-hoc pairwise comparisons were employed to identify significant differences between conditions. As expected, participants in the “*Sushi Rou*” (vegetarian/vegan meat) ( $M = 3.92; SD = 0.79$ ) and “*Zhiwu Rou*” (plant-based meat) ( $M = 3.85; SD = 0.98$ ) conditions both exhibited higher behavioral intention compared to those in the “*Renzaou Rou*” (artificial meat) ( $M = 3.32; SD = 1.04; p < .001$  for “*Sushi Rou*”,  $p =$

0.004 for “*Zhiwu Rou*”) condition. There was no significant difference between the “*Sushi Rou*” and “*Zhiwu Rou*” conditions ( $p = 0.68$ ). These results support the hypothesis that product name influences consumers’ behavioral intention (H1).

*Valence of Name Association.* Results from a one-way ANOVA revealed a significant effect of the product name on the valence of the name associations ( $F(2, 180) = 15.06, p < 0.001$ ). Specifically, “*Sushi Rou*” ( $M = 4.64; SD = 0.96$ ) and “*Zhiwu Rou*” ( $M = 4.67; SD = 0.95$ ) both activated more positive associations than “*Renzaou Rou*” ( $M = 3.79; SD = 1.09; p < .001$  for both “*Sushi Rou*” and “*Zhiwu Rou*”). There is no significant difference between the “*Sushi Rou*” and “*Zhiwu Rou*” ( $p = 0.83$ ).

*Mediation analyses.* Since the independent variable has multiple categories (i.e., three name conditions), we followed Hayes’s and Preacher’s (2014) procedures to test the mediating effect of the valence of the name associations. Statistical analyses were conducted with PROCESS using the bootstrapping approach (Model 4; Hayes, 2017). The independent variable was the name condition, the dependent variable was behavioral intention, and the valence of the name associations was the mediator. Three relative indirect effects were obtained for three pairs of names. Results show that the mediating effect is significant for the name “*Zhiwu Rou*” (vs. “*Renzaou Rou*”) (Relative indirect effect = 0.28, 95% CI = [.105, .466]). This is also the case for “*Sushi Rou*” (vs. “*Renzaou Rou*”) (Relative indirect effect = 0.26, 95% CI = [.098, .450]). However, the mediation path is not significant for “*Zhiwu Rou*” (vs. “*Sushi Rou*”) (95% CI = [-.100, .118]). The findings support that the positivity of the name associations mediates the effect of the product name on behavioral intention (H2).

*Qualitative analysis on name associations.* To further examine what thoughts and/or feelings were activated by the three labels, we categorized the associations listed by participants in each experimental condition (see Table 1). The most frequently listed words in the “*Renzaou Rou*” condition include “not healthy”, “not tasty”, “fake”, “manufactured”, “additives”, and “not safe”. There were also a few positive annotations such as “environmentally friendly”, and “future food”. However, the name “*Renzaou Rou*” generally activated negative perceptions in terms of health and safety, taste, and naturalness, along with a few negative feelings such as “bad”, “dislike”, and “disgusting”. The commonly mentioned descriptions for “*Sushi Rou*” were “beans/soy products”, specific soy-based snacks or dishes such as “bean curd roll”, “weight

loss/low fat”, “temple/monk”, “meat-like taste”, and “vegetarian/vegetarianism”. The name “*Sushi Rou*” evoked individuals’ thoughts about traditional vegetarian dishes, healthier diets, and religious beliefs. The most often listed associations with “*Zhiwu Rou*” were plant and fruit names irrelevant to the product itself, “green/environment-friendly”, “new/innovative/trendy” and “high-tech”, “vegetarian/vegetarianism”, “healthy/healthier”, and “not tasty”. Unlike the other two names, it also reminded some participants of certain restaurant brands and “higher price/cost”. This suggests that the name “*Zhiwu Rou*” is less known in China and it often triggers a connection with nature, thus eliciting more positive perceptions.

[Table 1 here]

### 3.3 Discussion

Study 1 demonstrates that the name of the novel meat alternative has a downstream impact on consumers’ behavioral intention. Specifically, the name “*Renzao Rou*” (artificial meat) seems to perform the worst, activating the most negative associations, thus having a dampening effect on behavioral intention. In contrast, the two names “*Sushi Rou*” (vegetarian/vegan meat) and “*Zhiwu Rou*” (plant-based meat) resulted in more positive consumer responses. The mediation analyses show that the positivity of the name associations is the underlying mechanism. In other words, the name elicits different associations which subsequently drive consumers’ behavioral intention.

The qualitative analysis enables us to gain a deeper understanding of the underlying process behind the naming effect. The findings demonstrate that there are some differences in the name associations. Specifically, “*Renzao Rou*” evoked naturalness and safety concerns while “*Sushi Rou*” reminded participants of traditional vegetarian dishes and led to fewer taste concerns. “*Zhiwu Rou*” triggered a stronger linkage to the natural environment and elicited more positive perceptions in terms of food innovation and trendiness.

## 4. Study 2

The goal of Study 2 is to test the causal relationship between the name and product attributes and to identify which attributes drive the naming effect on behavioral intention. A general population sample was used to increase the generalizability and the context was a restaurant promoting a new plant-based burger.

#### 4.1 Method

Study 2 employed a single-factor, between-subjects experimental design (name: “*Renzaou Rou*” vs. “*Sushi Rou*” vs. “*Zhiwu Rou*”). 165 Chinese adult consumers were recruited in April 2021 via Sojump ([www.sojump.com](http://www.sojump.com)), the largest online survey platform in China extensively used by other hospitality researchers (e.g., Shen *et al.*, 2020; Wang *et al.*, 2015). The average age of the sample was 32 years old, 65% of participants were male, 96% held a bachelor’s degree or above and 54% had a monthly income of RMB7,500 (\$1,200) or above. While previous research suggests 30 subjects per condition as the cut-off point for experimental studies (Fong *et al.*, 2016), our sample sizes were at least 50 per cell to reflect the higher requirements in an online context (Mattila *et al.*, 2021).

Participants imagined that they passed by a fast-casual restaurant when going out for lunch and noticed a promotion of a new burger. They were then exposed to an ad with the tagline “[X] burger is coming – taste just like meat” whereby [X] was replaced by one of the three names. There was also a description of the new burger: “This product contains no animal ingredients. The burger patty is made from soy protein, potato starch, coconut oil, and other ingredients.” The ad content was identical across the conditions except for the name in the tagline.

Participants responded to a four-item scale capturing behavioral intentions (e.g., “How interested are you in trying this new burger?”, “How likely are you to buy this new burger?”;  $\alpha = 0.94$ ; adapted from Bryant *et al.*, 2019). Perceptions of the burger were rated on six product attributes: taste (1 = not tasty, 7 = tasty), healthiness (1 = unhealthy, 7 = healthy), naturalness (1 = unnatural, 7 = natural), environment-friendliness (1 = bad for the environment, 7 = good for the environment), animal-friendliness (1 = bad for animals, 7 = good for animals), and novelty (1 = not novel, 7 = novel). The six attributes were selected based on previous research (Bryant *et al.*, 2019; Ye and Mattila, 2021) and our qualitative findings in Study 1.

#### 4.2 Results

*Behavioral intention.* A one-way ANOVA reveals a significant effect of product name on behavioral intention ( $F(2, 162) = 12.76, p < .001$ ). Participants in the “*Sushi Rou*” (vegetarian/vegan meat) ( $M = 5.59$ ;  $SD = 1.12$ ) and “*Zhiwu Rou*” (plant-based meat) ( $M = 5.67$ ;  $SD = 1.00$ ) conditions both demonstrated higher levels of behavioral intention compared to those

in the “*Renzao Rou*” (artificial meat) ( $M = 4.59$ ;  $SD = 1.56$ ;  $p < .001$  for both “*Sushi Rou*” and “*Zhiwu Rou*”) condition. No significant difference was found between the “*Sushi Rou*” and “*Zhiwu Rou*” conditions ( $p = 0.68$ ).

*Product attributes.* MANOVA results reveal a significant effect of product name on perceived health ( $F(2, 162) = 12.17$ ,  $p < .001$ ), naturalness ( $F(2, 162) = 3.22$ ,  $p = 0.04$ ), environmental friendliness ( $F(2, 162) = 4.50$ ,  $p = 0.01$ ), and novelty ( $F(2, 162) = 8.85$ ,  $p < .001$ ). The effect of product name on anticipated taste ( $F(2, 162) = 2.88$ ,  $p = 0.06$ ) is marginally significant while the impact on perceived animal friendliness is insignificant ( $F(2, 162) = 1.66$ ,  $p = 0.19$ ). The mean scores are shown in Table 2. The new burger was rated as the least healthy and natural when framed with “*Renzao Rou*”. The rating score for taste perception is higher in the “*Sushi Rou*” (vs. “*Renzao Rou*”) condition while the differences in the other two pairs (“*Zhiwu Rou*” vs. “*Sushi Rou*” and “*Zhiwu Rou*” vs. “*Renzao Rou*”) are not significant. The new burger was perceived as more environmentally friendly and novel when framed with “*Zhiwu Rou*” compared to the other two names, whereas no difference was found in animal-friendliness perception.

**[Table 2 here]**

*Mediation analyses.* We followed Hayes’s and Preacher’s (2014) procedures and performed mediation analysis with PROCESS (Model 4; Hayes, 2017). The independent variable was the name condition, the dependent variable was behavioral intention, and the six product attributes were the parallel mediators. For each product attribute, three relative indirect effects were obtained for three pairs of names. As shown in Table 3, the relative indirect effects via perceived health (Effect = 0.16, 95% CI = [.007, .347]), naturalness (Effect = 0.13, 95% CI = [.007, .300], and novelty (Effect = 0.16, 95% CI = [.031, .355]) are significant for the name “*Zhiwu Rou*” (vs. “*Renzao Rou*”). The relative indirect effects via perceived health (Effect = 0.14, 95% CI = [.005, .329]), taste (Effect = 0.22, 95% CI = [.028, .458]), and naturalness (Effect = 0.13, 95% CI = [.002, .286]) are significant for the name “*Sushi Rou*” (vs. “*Renzao Rou*”). The relative indirect effect via novelty perception (Effect = 0.14, 95% CI = [.029, .261]) is significant for the name “*Zhiwu Rou*” (vs. “*Sushi Rou*”). Overall, the findings suggest that perceived health, taste, naturalness, and novelty mediate the naming effect on behavioral intention.

**[Table 3 here]**

### 4.3 Discussion

Study 2 provides more insights into the naming effect by addressing the two research questions (Q1-2). First, participants evaluated the new burger as healthier, more environmentally friendly, more natural, and more novel when it was labeled as “*Zhiwu Rou*” compared to “*Renzaao Rou*”. Furthermore, the positive effect of “*Zhiwu Rou*” (vs. “*Renzaao Rou*”) on behavioral intention was driven by perceived health, naturalness, and novelty. Second, participants evaluated the new burger as healthier, tastier, and more natural when it was labeled “*Sushi Rou*” compared to “*Renzaao Rou*”. Moreover, the positive effect of “*Sushi Rou*” (vs. “*Renzaao Rou*”) on behavioral intention is driven by perceived health, taste, and naturalness. Third, participants evaluated the new burger as more environmentally friendly and novel when labeled “*Zhiwu Rou*” compared to “*Sushi Rou*”. However, “*Zhiwu Rou*” (vs. “*Sushi Rou*”) didn’t result in higher behavioral intentions.

## 5. Conclusion and discussions

### 5.1 Conclusion

Focusing on the recent surge of novel meat alternatives (Good Food Institute, 2020; Zhang *et al.*, 2021) as well as the importance of the name in introducing new products (Chung and Eoh, 2019), we conducted two experiments to investigate how the product name influences Chinese consumers’ responses to meat alternatives. Study 1 shows that the labels “*Sushi Rou*” and “*Zhiwu Rou*” led to higher intention to try meat alternatives compared to “*Renzaao Rou*”, and the effect was driven by the positive valence of the name associations. The qualitative data further demonstrate the differences in the associations activated by the three names. Study 2 validated the naming effect on behavioral intention in a restaurant context and revealed perceived health, taste, naturalness, and novelty as the main drivers of the process.

### 5.2 Theoretical implications

Previous studies on meat alternatives acceptance have mainly focused on consumer-related factors (e.g., food neophobia and meat commitment) and product-related attributes (e.g., taste, health, sustainability, availability, price, and brand) (Bryant *et al.*, 2019; Hoek *et al.*, 2011; Slade, 2018; Van Loo *et al.*, 2020). However, the effectiveness of contextual factors, such as those related to advertising and communication practices (Gonzalez *et al.*, 2022), has been

largely ignored (Onwezen *et al.*, 2021; Ye and Mattila, 2021). To bridge that gap the present research reveals the power of the product name in shaping consumers' evaluations of meat alternatives and subsequent behavioral intentions. It extends previous work by further uncovering name associations and product attribute perceptions as the underlying mechanisms explaining the naming effect.

Specifically, “*Renzao Rou*” evokes naturalness and safety concerns, thus resulting in less favorable behavioral outcomes. This is consistent with the previous finding that perceived naturalness is a key factor in consumers' acceptance of new food technologies (Siegrist, 2008). However, such high-tech products may attract neophilic consumers who actively seek novel foods (Veeck, 2010). For example, Liu *et al.*, (2021) found that a quarter of Chinese respondents in their survey exhibited a willingness to try cultured meat due to curiosity. Indeed, we measured food neophobia ( $\alpha = 0.79$ ; Pliner and Hobden, 1992) in Study 2 for exploratory purposes. A follow-up analysis shows that the negative effect of “*Renzao Rou*” was attenuated among individuals low in food neophobia.<sup>1</sup> Relatedly, Zhang *et al.* (2020) found that younger Chinese males, especially those with higher education, show a higher acceptance of cultured meat (called artificial meat). The name “*Renzao Rou*” might thus be more effective among this group of consumers.

“*Sushi Rou*” and “*Zhiwu Rou*” both led to higher levels of behavioral intention but via different processes. “*Sushi Rou*” reminds people of traditional Chinese vegetarian dishes and induces lower taste concerns. This may happen because the name stimulates a sense of familiarity, a driver of innovative food product acceptance (Hoek *et al.*, 2011; Onwezen *et al.*, 2021). In contrast, “*Zhiwu Rou*” is a less familiar name, thus inducing novelty perceptions. Moreover, it triggers a strong linkage to nature (Study 1) and increases perceived environmental friendliness (Study 2), though environmental friendliness doesn't significantly drive behavioral outcomes. This finding is contrary to Bryant *et al.* (2019) and Shen and Chen (2020), revealing perceived sustainability and individuals' environmental concerns as significant drivers of Chinese consumers' intent to purchase plant-based meat. Yet, our finding is consistent with a recent study

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<sup>1</sup> We found a significant interaction between name condition and food neophobia on behavioral intention ( $F(2, 159) = 3.58, p = 0.03$ ). Specifically, “*Renzao Rou*” resulted in less favorable behavioral intention than the other two names among participants higher in food neophobia ( $F(2, 159) = 12.12, p < .001$ ), but such differences were attenuated among those less neophobic than average ( $F(2, 159) = 1.66, p > 0.1$ ).

on cultured meat indicating that environmental protection and animal welfare are less important concerns than safety, taste, and nutrition in the Chinese context (Liu *et al.*, 2021). These mixed findings call for future research examining the role of environmental attributes on consumers' acceptance of meat alternatives.

In addition, we address the call for more research on relatively unexplored emerging markets such as China (Bryant and Barnett, 2019; Liu *et al.*, 2021) and show the importance of considering cultural norms when introducing and promoting novel meat alternatives. Although in the Western context “vegetarian” or “vegan” labels tend to be perceived as undesirable (Markowski and Roxburgh, 2019; Wise and Vennard, 2019), such negative associations are not salient among Chinese consumers. Instead, our findings show that naming the meat alternative as vegetarian/vegan or plant-based resulted in similar levels of behavioral intention. However, these two names had different associations and resulted in different attribute-level evaluations. Since previous research suggests that the importance of product-related drivers varies by individual and by context (Onwezen *et al.*, 2021), it would be interesting to investigate what conditions can make each name more effective. For instance, the term plant-based might lead to more desirable behavioral outcomes when environmental messaging elicits sustainability concerns in product choice.

Lastly, the study findings add to the hospitality literature by demonstrating the naming effect in promoting new menu items made with meat alternatives. The restaurant industry has a big role to play in influencing people's food choices and nudging them to a healthier and more sustainable diet (Božić and Milošević, 2021; Cai *et al.*, 2021; Choe *et al.*, 2020). Even simple interventions can influence what people choose to eat as many consumers' food decisions are automatic (Dolan *et al.*, 2012). Prior studies have documented the effectiveness of subtle interventions such as a small alternation to the price (Garnett *et al.*, 2021), default menu options (Campbell-Arvai *et al.*, 2014), menu-based dynamic norm messages (Sparkman *et al.*, 2020), and meal framing (Krupan and Houtsma, 2020). The present studies contribute to this stream of research by focusing on meat alternatives, a means of reducing livestock production and animal meat consumption that has received growing attention (Ismail *et al.*, 2020; Slade, 2018). Our findings suggest that a descriptive name can be a critical factor that influences consumers' attribute-level perceptions and behavioral intentions. As an initial examination of Chinese consumers' responses to meat



alternatives, this research calls for further investigation on how product names may interact with other interventions (e.g., pricing, message framing).

### *5.3 Practical implications*

This research provides timely and useful insights into Chinese consumers' responses to plant-based meats by showing that even a simple name can influence perceptions and acceptance of such novel products. Thus, restaurants should be careful when introducing meat alternatives. Particularly, we address the importance of avoiding labels with negative associations and considering the cultural norms in the marketplace. Appropriate language use, such as choosing a name with more positive but less negative associations, will be helpful to improve product evaluations and willingness to try plant-based meats. The term “artificial meat” is commonly used in the Chinese media when introducing restaurants offering plant-based meat products<sup>234</sup>. Such messaging might attract individuals who are curious about new food technologies. Notably, a few food service organizations producing and/or offering plant-based meat dishes also utilized this name in their promotions. However, our findings suggest that such a name can cause aversive reactions among consumers. Therefore, restaurants interested in introducing meat alternatives should more carefully choose the name in their marketing communications.

International chains may want to consider cultural norms when launching meat alternatives in emerging markets. For example, Chinese consumers tend to have more positive reactions to names like vegetarian/vegan and plant-based compared to artificial. Accordingly, practitioners could consider strategies of leveraging the positive associations embedded in both the more familiar and relatively new names (e.g., “plant-based” as an upgraded version of traditional “vegetarian/vegan”). Ultimately, businesses should combine appropriate labeling with other promotional strategies such as price reduction and meal framing (Garnett *et al.*, 2021; Krpan and Houtsma, 2020). For instance, prior studies show that using sustainability labels on restaurant menus or environmental appeals can cue environmental concerns, thus enhancing consumers' propensity to purchase non-meat alternatives (Piester *et al.*, 2020). Since the term plant-based

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<sup>2</sup> <https://krcom.cn/2258727970/episodes/2358773:4416883294957660> (accessed on March 20, 2022)

<sup>3</sup> [https://www.sohu.com/a/396738520\\_120144005](https://www.sohu.com/a/396738520_120144005) (accessed on March 20, 2022)

<sup>4</sup> <https://baijiahao.baidu.com/s?id=1721165684438975601&wfr=spider&for=pc> (accessed on March 20, 2022)

leads to high perceived environmental friendliness, such interventions would likely be more effective when naming meat alternative dishes as plant-based.

### *5.3 Limitations and future research*

This research has several limitations. First, our experiments adopted hypothetical scenarios. It is worthwhile to further investigate the naming effect on actual food choices and taste perceptions using field studies. While a plant-based beef burger was used as a stimulus, other animal products (e.g., dairy, seafood) are also worthy of investigation. Second, the current research was conducted in China. The results might not apply to consumers in other cultures. As the naming effect tends to be socially and culturally constructed (Moscovici, 1981), future research should explore this topic in other Asia-Pacific countries.

In addition, it would be interesting to examine the effectiveness of various advertising appeals with a certain product name. For instance, our studies indicate that Chinese consumers are less familiar with the name “plant-based”, which tends to trigger a strong linkage with nature as well as innovation and trendiness. Accordingly, researchers can further investigate whether framing plant-based food consumption as a trendy way of pursuing a sustainable lifestyle results in more positive consumer outcomes than using a taste or a health appeal.

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**Table 1.** The frequency of various name associations across experimental conditions.

Name associations	<i>Renzao Rou</i> (artificial meat)	<i>Sushi Rou</i> (vegetarian/vegan meat)	<i>Zhiwu Rou</i> (plant-based meat)
Health	not healthy (17); additive/preservative/hormone (10); not safe (9); concern on ingredient (6); not sure if healthy (4); healthy (2); high protein (1); low fat (1)	weight loss/low fat (19); healthy/healthier (8); light diet (6); high protein (2)	healthy/healthier (12); weight loss/low fat (10); not healthy (2)
Taste	not tasty (15); not sure about taste (4)	meat-like taste (12); not tasty (8); tasty (6); less tasty than meat (3)	not tasty (12); meat-like taste (6);
Naturalness	manufacturing (11); fake (13); chemistry (5); human-made (3)	synthetic meat (10);	synthetic meat (11); fake meat (3)
Environment- and animal-friendly	green/environment-friendly (6); animal-friendly (1)	no killing (2)	green/environment-friendly (16); animal-friendly (2)
Novelty	unknown/unfamiliar (9); new/innovative (4)	innovation/technology (3); unfamiliar (1)	new/innovative/trendy (14); high tech (14); unknow/niche (4)
Soy-based Products	beans/soy products (8); specific soy-based snacks or dishes (10);	beans/soy products (20); specific soy-based snacks or dishes (34);	beans/soy products (6); specific soy-based snacks or dishes (8);
Religion and vegetarian		vegetarian/vegetarianism (12); contain no meat (9); temple/monk (15); religious belief (4); Chinese tradition (2)	vegetarian/vegetarianism (13)
Others	negative feelings (18); hamburger (4)	plants/fruits (12)	plants/fruits (39); restaurant brands (11); higher price/cost (8); hamburger (4)

**Table 2.** Mean scores and standard deviations across experimental conditions.

Attributes	<i><b>Renzao Rou</b></i>	<i><b>Sushi Rou</b></i>	<i><b>Zhiwu Rou</b></i>
	(artificial meat)	(vegetarian/vegan meat)	(plant-based meat)
Health	4.98 <sub>a</sub> (1.52)	5.92 <sub>b</sub> (1.12)	6.05 <sub>b</sub> (1.05)
Taste	4.68 <sub>a</sub> (1.67)	5.34 <sub>b</sub> (1.34)	5.09 <sub>ab</sub> (1.31)
Naturalness	4.54 <sub>a</sub> (1.86)	5.19 <sub>b</sub> (1.41)	5.21 <sub>b</sub> (1.47)
Good for the environment	5.25 <sub>a</sub> (1.27)	5.43 <sub>a</sub> (1.26)	5.91 <sub>b</sub> (1.07)
Good for animals	5.73 <sub>a</sub> (1.36)	5.83 <sub>a</sub> (1.52)	6.16 <sub>a</sub> (0.99)
Novelty	5.36 <sub>a</sub> (1.70)	5.53 <sub>a</sub> (1.35)	6.38 <sub>b</sub> (0.95)

Note: Means that do not share a subscript letter are significantly different ( $p < 0.05$ ).

**Table 3.** Mediation effects via product attributes

Attribute	<i><b>Zhiwu Rou vs. Renzao Rou</b></i>		<i><b>Sushi Rou vs. Renzao Rou</b></i>		<i><b>Zhiwu Rou vs. Sushi Rou</b></i>	
	(plant-based vs. artificial)		(vegetarian/vegan vs. artificial)		(plant-based vs. vegetarian/vegan)	
	Effect	95% CI	Effect	95% CI	Effect	95% CI
Health	0.16	[.007, .347]	0.14	[.005, .329]	n.s.	[-.050, .092]
Taste	n.s.	[-.055, .341]	0.22	[.028, .458]	n.s.	[-.283, .084]
Naturalness	0.13	[.007, .300]	0.13	[.002, .286]	n.s.	[-.113, .118]
Good for the environment	n.s.	[-.129, .091]	n.s.	[-.058, .043]	n.s.	[-.108, .069]
Good for animals	n.s.	[-.083, .050]	n.s.	[-.051, .049]	n.s.	[-.087, .036]
Novelty	0.16	[.031, .355]	n.s.	[-.060, .173]	0.14	[.029, .261]