

## The Effect of Food Neophobia Changes Depending on Visual Appearance

Risa JITOSHO

Associate Professor of Policy Science, Ryukoku University

### < Abstract >

Food neophobia refers to the unwillingness or refusal to eat new foods. Previous empirical studies have not adequately considered the role of visual appearance. This study examined the relationship between visual appearance of food and eating refusal caused by food neophobia. The results revealed that for disliked/inappropriate foods, eating refusal caused by food neophobia was likely to occur, regardless of the tendency level. A difference in eating intention was also found to be dependent on food neophobia when the food was familiar. The results indicated that food appearance influences the tendency for food neophobia and refusal to eat.

### < Keywords >

Food Neophobia, Novel Food, Eating Behavior, Ethnic Food, Visual Appearance

## 1. Introduction

Imagine a food that you have never seen before, and you have no idea what it is or what it contains. Can you eat it without hesitation? In this study, we focus on individuals' reluctance to eat or avoidance to certain foods unfamiliar to them, a phenomenon called food neophobia.

Food consumption is deeply rooted in customs compared with other products, and one's choices strongly reflect consumer identity (Devine, et. al., 1999). Therefore, when food companies operate across cultures and borders, they face a unique barrier, such as food neophobia. This study helps food companies overcome these cultural barriers.

Food neophobia has been suggested to influence perception and consumption behavior (Verbeke & López, 2005; Jang & Kim, 2015). However, many previous studies have focused on just one food stimulus, and few have examined food refusal based on appearance caused by food neophobia. Visual information is important when choosing food (Spence et al., 2016). Therefore, in this study, by examining food with various appearances, including insects, we sought to clarify whether food is rejected based on visual appearance owing to food neophobia. This is a theoretically valuable challenge for clarifying the application of previous studies.

## 2. Literature review

### 2.1 Food neophobia

Food neophobia, also known as fear of novel foods, is “the unwillingness or refusal to eat or tendency to avoid new foods” (Pliner & Hobden, 1992). Historically, avoiding poisonous foods has been a human instinct. Humans and other omnivorous animals have behavioral patterns that recognize whether what they drink or eat for the first time is potentially dangerous. Thus, they either hesitated to consume or avoided it altogether. Food neophobia is an adaptive behavior in environments in which many animals and plants are potentially unsuitable for consumption (Pliner & Hobden, 1992). We first summarize the prerequisites for considering food neophobia from the perspective of consumer food choices.

A typical explained variable for food neophobia associated with consumer food choices is purchasing intent (purchase intention) (Camarena et al., 2001; Raudenbush & Frank, 1999) and the intention to eat (willingness to try) (Tuorila et al., 2001; Bäckström et al., 2003). Food neophobia has both direct and indirect negative effects on these dependent variables (Kim et al., 2014).

Previous studies on food choices have primarily aimed to clarify consumer reactions to genetically modified and highly processed foods and foreign products. The practical purpose of these studies was to encourage consumers to accept novel foods. Therefore, the conditions that alleviate refusal to eat (referred to as the eating refusal tendency) have been debated.

What humans eat or not has strong cultural roots that can create barriers to trying

new foods (Fenko et al., 2015; Jang & Kim, 2015). Consequently, the major issue for companies aiming at crossing cultural and national borders is how to mitigate refusal to eat caused by food neophobia. Magoshi (2011) suggests that intercultural management requires individuals to be “tolerant” and “resilient” toward other cultures. Hence, the author considers the concept of food neophobia, which is the subject of this study, as a type of “resilience” against different cultures.

The most effective way to encourage consumers to eat new food is to make them feel familiar with the food. This removes potential fear and alertness (Hoek et al., 2012). However, studies assumed that refusal to eat is caused by food neophobia, and the scope of its application has not been clarified.

Vision is deeply involved in refusal to eat (Aoki, 1994). However, previous empirical studies have used a single food item, with little consideration on the association between refusal to eat because of food neophobia and the perceived novelty of new foods.

However, regardless of food appearance, humans are less motivated to consume insects (Modlinska et al., 2020). Therefore, the findings of previous studies on food neophobia mitigation may only apply to cuisine within a certain range. Additionally, studies on insect food and other foods are biased toward either side, and few studies have treated both in the same line to examine refusal to eat and food appearance caused by food neophobia. Therefore, in this study, we assessed food with various appearances, including insects, to clarify the visual appearance of rejected foods due to food neophobia. This is a theoretically valuable step for clarifying the scope and applications of previous studies.

## 2.2 Acceptance and visual appearance of novel products

An overview of studies on visual novelty and new product acceptance suggests a strong connection between visual appearance and purchasing intention (Yamamoto & Lambert, 1994; Mumcu & Kimzan, 2015; Akiike & Katsumata, 2016). Practically, there are studies in which it is better for the visual appearance to be novel (Mumcu & Kimzan, 2015) and those in which it is better when the visual appearance is typical (Veryzer & Hutchinson, 1998). For instance, Mumcu and Kimzan (2015) suggested that the more unique (novel) the visual appearance of food, the lower the price sensitivity of consumers.

Akiike and Katsumata (2016) described that design novelty includes two factors: emotional novelty, such as “innovative” and “atypical,” and functional arousal novelty, such as “technically superior” and “multifunctional.” They clarified that the effects of each factor differ depending on the amount of subjective knowledge consumers possess. Moreover, it has been demonstrated that the appeal of functional novelty is effective for the consumption of novel vegetables (Michell et al., 2020); however, the subject was only vegetables, and there are few studies on emotional novelty and food appearance.

In previous studies on food neophobia, particularly those aimed at alleviating refusal, the main focus was on a single food for practical purposes, and the effects of visual appearance of the target food were not considered. However, given that the taste is unknown, a novel food is avoided depending on its visual appearance. However, previous studies have overlooked the outward characteristics of novel foods. Therefore, in this study, we examined the relationship between visual appearance of food and eating refusal caused by food neophobia.

There is a close relationship between food selection and visual appearance (Spence et al., 2016). In particular, there is (1) a relationship between the color of food and intention to consume and (2) between the shape or presentation of the food and intention to consume. Studies have been conducted on colors that affect consumers’ taste and appetite. For example, green is associated with lime, and orange is associated with mandarin orange (Zampini et al., 2007), reflecting the relationship between color and taste or the expected taste of orange juice (Wei et al., 2012).

Regarding the shape or presentation of food, it appears more delicious when placed on a white plate (Piqueras-Fiszman et al., 2012), which is related to its round shape and sweet taste (Ngo, Misra, & Spence, 2011). This study attempted to reveal the information that consumers use as clues to infer taste. The central question is what consumers associate with tastes.

Additionally, in this study on food neophobia, we considered that reactions could vary depending on consumer characteristics. However, the assumption of food neophobia causes a refusal to eat regardless of appearance.

To overcome this limitation, we examined the relationship between the visual appearance of food (perceived novelty) and eating refusal caused by food neophobia. To handle a wider range of food than a single one, as in that of previous studies, we use

the Harris (1985) framework as a guide.

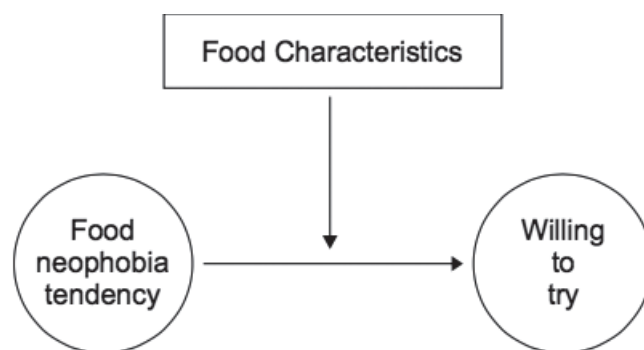
In a cultural anthropological study on food contact denial, Harris (1985) categorized foods that individuals will not eat as (1) unpleasant, (2) dangerous, (3) inappropriate, and (4) aversive. “Aversive foods” are those that are unfamiliar to most people, such as when westerners are confronted with insects (Harris, 1985). As this is a study on food refusal, we use the same framework as a guide.

When eating novel foods, consumers would avoid inappropriate foods based on cognitive judgment such as knowledge or beliefs. Individuals do not know whether the inappropriate food group is bad, and while it may be harmless, they will not eat it. Generally, individuals with a high tendency toward food neophobia prefer familiar foods (McFarlane & Pliner, 1997).

Moreover, it is essential to provide consumers with familiarity to alleviate eating refusal caused by food neophobia (Hoek et al., 2012). Nonetheless, an experiment with the message “It has a familiar taste” (Fenko et al., 2015) succeeded in encouraging people with a strong tendency toward food neophobia to recognize the product; however, it did not change their eating intentions. It has been suggested that consumers with a strong tendency toward food neophobia may not be able to eat new food, even if they have a familiar visual appearance or resemble familiar cuisine.

Hence, based on the above considerations, this study proposes the following hypothesis (Figure 1):

Figure 1: Visual appearance of food and food neophobia



Hypothesis 1: When eating novel foods classified as aversive, regardless of food neophobia, consumers' intention to eat is low.

Hypothesis 2: When eating novel foods classified as inappropriate, consumers with low food neophobia tend to have a higher intention to eat than those with high food neophobia.

Hypothesis 3: When eating novel foods classified as cuisines similar to familiar dishes, consumers with low food neophobia tend to have higher eating intentions than those with high food neophobia.

### **3. Methodology**

#### **3.1 Pretest**

First, we performed a pretest to check the positioning of the experimental stimuli, which included photographic material (N=150). The survey was conducted from November 28 to November 31, 2017.

A pretest was conducted using a panel monitor. The inclusion criteria were men and women aged between 25 and 30 years who lived in the Tokyo metropolitan area. The exclusion criteria were those living in other counties or islands of Tokyo and students. The differences in eating intentions according to sex, occupation, place of residence, and age were not significant. A total of 150 valid responses were obtained. The basic sample characteristics were an average age of 26.6 years, and 50% were women.

The experimental procedures are as follows: Participants were randomly assigned to one of the five photos of unfamiliar foods: (1) stir-fried silkworms, (2) otak-otak, (3) hummus, (4) pai-tia, or (5) laksa. Using a 7-point Likert scale, the participants were then asked to evaluate the visual appearance of the food from 1 (novel) to 7 (familiar) and rate whether the food resembled familiar cuisines from 1 (strongly disagree) to 7 (strongly agree). Additionally, to provide a sense of cultural distance, this study primarily used Malaysian cuisines because food neophobia may be influenced by familiarity with the culture behind the food.

We screened the studies using the following procedure: To measure attitudes toward “unknown or unfamiliar” food, we presented participants with pictures of each cuisine

in advance and used the familiarity scale developed by Bäckström et al. (2003): (1) I have never seen this cuisine; (2) I am familiar with this cuisine, but I have never eaten it; (3) I have eaten this cuisine before, but I do not eat it anymore; (4) I sometimes eat this cuisine; and (5) I regularly eat this cuisine. These measure familiarity with the target cuisine. Participants who chose 1 or 2 were included in the website experiment.

### 3.1.1 Food neophobia scale

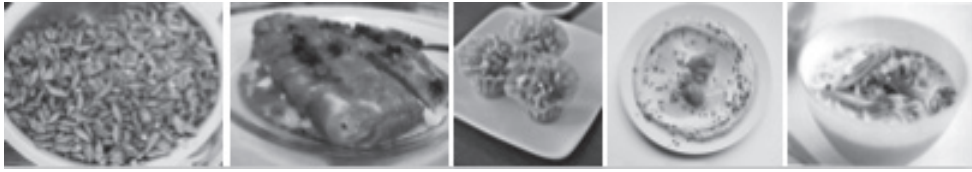
The most commonly used measurement for food neophobia in consumer behavior research (Meiselman et al., 2010) is the food neophobia scale (FNS) developed by Pliner and Hobden (1992) (Table 1). Their scale was developed for university students in Canada but was also translated and used in Finland (Tuorila et al., 2001) and Brazil (Previato & Behrens, 2015), and its reliability has been confirmed.

Table 1: FNS of Pliner and Hobden (Pliner and Hobden ,1992, p.109)

- 
- (1) I am constantly sampling new and different foods (R).
  - (2) I don't trust new foods.
  - (3) If I don't know what is in the food, I won't try it.
  - (4) I like foods from different countries (R).
  - (5) Ethnic food looks too weird to eat.
  - (6) At dinner parties, I will try a new food (R).
  - (7) I am afraid to eat things I have never had before.
  - (8) I am very particular about foods I will eat.
  - (9) I will eat almost anything (R).
  - (10) I like to try new ethnic restaurants (R).
- 
- (R) The positive items have been reversed.

The cuisine photographs used in the experiment are shown in Figure 2. The names of the cuisines were not presented.

Figure 2: Photographs used in the experiment



### 3.1.2 Pretest results

As a result of the variance analysis, the differences between cuisine groups were predominant in each item for visual appearance impression, for instance, similar to familiar cuisines ( $F [4,149] = 17.517, p < .001$ ). Furthermore, multiple comparisons of whether it resembles a familiar cuisine confirmed that participants perceived a significant difference between the stir-fried silkworms ( $M = 1.33, SD = 0.71$ ), otak-otak ( $M = 1.92, SD = 1.56$ ) and between hummus ( $M = 2.93, SD = 1.39$ ), pai-tia ( $M = 2.5, SD = 1.28$ ), and Laksa ( $M = 3.1, SD = 1.21$ ). Laksa resembles a familiar cuisine. By contrast, stir-fried silkworms and otak-otak did not resemble familiar cuisines.

In addition, impressions on visual appearance of stir-fried silkworms ( $M=1.63, SD = 1.07$ ) significantly differ from those of the other four cuisines (otak-otak ( $M=4.03, SD = 1.43$ ), hummus ( $M=3.97, SD = 1.43$ ), pai-tia ( $M=3.4, SD = 1.33$ ), laksa ( $M=4.1, SD = 1.52$ )) and were more novel ( $F [4, 149] = 9.877, p < .001$ ). Therefore, we confirmed that stir-fried silkworms were classified as “disliked foods” among Japanese participants.

Based on these results, the study experiments were conducted using the classifications “averse food such as stir-fried silkworms,” “inappropriate food such as otak-otak,” and “the other three are similar to familiar cuisines.”

### 3.2 Study 1

In Study 1, we conducted an experiment on an online website using photographs of five cuisines: (1) stir-fried silkworms, (2) otak-otak, (3) hummus, (4) pai-tia, and (5) laksa.

#### 3.2.1 Scale and design

Study 1 was conducted on a panel monitor, which differed from that in Study 1. The inclusion criteria were men and women aged between 25 and 30 years who lived in the Tokyo metropolitan area. The exclusion criteria included living in other counties



or islands of Tokyo and students. These research collaborators were different from the pretest. This is because the author did not directly collect personal identifiable information from the participants in the experiment.

The differences in eating intentions according to sex, occupation, place of residence, and age were not significant. The number of valid responses was 250. The basic attributes of the sample used in the analysis are as follows: The average age was 27.7 years, and 51% were women.

The participants performed the same screening as in Study 1; they were randomly assigned to one of the five types of photos (Figure 3). After seeing the photo, they were asked them to evaluate their eating intentions on a 7-point Likert scale. Next, they answered questions that measure their food neophobia tendencies. The size and color scales of the photographs were unified.

Moreover, because of the nature of Internet panel surveys, we could not control the display time of photos. However, we confirmed that this did not influence the study because there was no significant difference in eating intention, which was the dependent variable between the top 30% and the bottom 30% of the response time.

We used the FNS developed by Pliner and Hobden (1992), and eating intention scale developed by Stone & Gronhaug (1993).

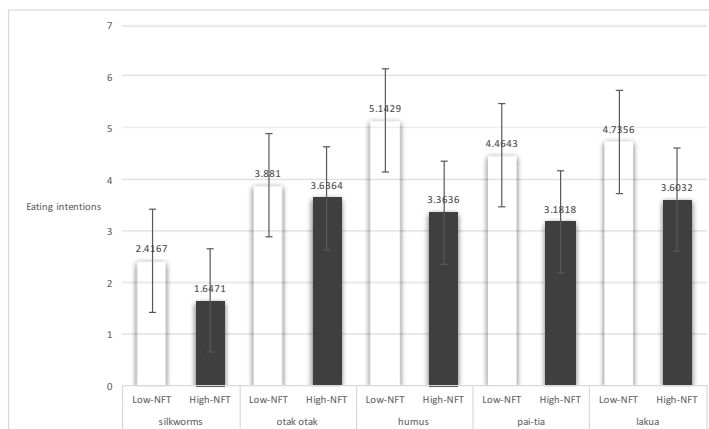
### 3.2.2 Study 1 results

First, the validity of the scale used in the analysis was confirmed. We calculated Cronbach's alpha for the internal validity of each scale using SPSS reliability analysis: FNS ( $\alpha = .82$ ) and eating intentions ( $\alpha = .92$ ).

For food neophobia, we followed the method used in a previous study. Based on the FNS median, we divided participants into two groups: high and food neophobia groups (high group/low group) and analyzed the two-factor analysis of variance between participants in which five cuisine types were used as independent variables and eating intention as the dependent variable. An analysis of variance was used to analyze the effects of food refusal owing to food shape and novelty fear. The main effect of food neophobia was significant ( $F [1, 249] = 33.165, p < .001$ ). The main effect of the shape of the cuisine was significant, and it confirmed a significant tendency in the interaction term ( $F [4, 249] = 18.78, p < .001$ ) ( $F [4, 249] = 2.062, p < .086$ ). Hence, we performed

multiple comparisons. There was no difference in eating intentions between Stir-fried silkworms and otak-otak based on the level of food neophobia and that between hummus, pai-tia, and laksa. The eating intentions of the group with low food neophobia were significantly higher ( $p < .001$  and  $p < .05$ , respectively) (Figure 3).

Figure 3: Eating intentions of 5 kinds of cuisine x food neophobia tendency (high/low)



Stir-fried silkworms showed no difference in eating intentions owing to food neophobia, and eating intentions were significantly lower in both the low ( $M=2.42, SD=1.59$ ) and high-food neophobia groups ( $M=1.67, SD=0.98$ ) than in all other cuisines ( $p < .001$ ). Therefore, Hypothesis 1 was confirmed.

For otak-otak, there was no difference in eating intention owing to food neophobia (High group [ $M=3.64, SD=1.38$ ], Low group [ $M=3.88, SD=1.20$ ]).

Therefore, Hypothesis 2 is not supported.

And there was no difference in eating intention between hummus, pai-tia, and laksa in the group with high food neophobia.

Finally, on foods hummus, pai-tia, and laksa, the eating intentions of the group presented with hummus (High group [ $M=3.36, SD=1.44$ ], Low group [ $M=5.14, SD=1.53$ ]) and pai-tia (High group [ $M=3.1818, SD=1.32$ ], Low group [ $M=4.46, SD=1.64$ ]) and that with a low food neophobia were significantly high ( $p < .001$  and  $p < .005$ , respectively). Therefore, Hypothesis 3 is partially confirmed.

From the above results, (1) for the disliked/inappropriate food, eating refusal caused by food neophobia is likely to occur regardless of the level of food neophobia, and (2)

it was confirmed that there is a difference in the intention to eat depending on food neophobia when food appearance was familiar.

#### **4. Discussion and Conclusion**

This study primarily aimed to clarify the effect of visual appearance on food refusal caused by food neophobia.

The following two points were observed in this study: (1) food neophobia has a negative effect on the intention to eat novel foods, and (2) the extent to which the results of previous studies can be explained.

First, it was demonstrated that food neophobia has a negative effect on the intention to eat novel foods. This finding is consistent with the results of previous studies. Second, it clarified that visual appearance influences consumers' eating intentions depending on the level of food neophobia. The assumptions given in previous studies were considered to apply only to cuisine, where the impression of visual appearances, such as laksa or hummus, was not strange and was similar to familiar dishes. It was revealed that the intention to eat decreased, regardless of the level of food neophobia in the case of extremely strange appearances, such as stir-fried silkworms and otak-otak or foods that cannot be identified at first glance. It is assumed that all consumers exhibit food neophobia to a certain degree.

These results were consistent with those of previous studies on insect food (Onwezen et al., 2020; Tuccillo et al., 2020; Orsi et al., 2019; Sidali et al., 2018).

##### **4.1. Theoretical implications**

In this study, we examined the relationship between the difference in eating intentions based on the level of food neophobia and visual appearance of food (perceived novelty) and clarified the position of previous studies.

First, on the relationship between differences in eating intentions owing to high or low food neophobia and the visual appearance (perceived novelty) of food, almost all studies in the field of consumer behavior research have assumed a difference in eating intentions depending on the level of food neophobia (Fenko et al., 2015; Jang & Kim, 2015). However, in this study, we clarified the relationship with perceived novelty as a

condition that influences a difference in eating intention depending on the level of food neophobia. Thus, an approach that appeals to consumers' food neophobia (Fenko et al., 2015; Jang & Kim, 2015) has been clarified.

Second, it expands the knowledge on consumer behavior research from the perspective of alleviating negative emotions. Thus, Hypothesis 1 was supported, Hypothesis 2 was not, and Hypothesis 3 was partially supported.

Food neophobia is a type of instinct; it has a stronger biological component than the behavioral patterns that previous consumer behavior research has targeted.

Thus, product acceptance has been considered from two perspectives: functional and emotional (Utsumi, 2008). Food neophobia has more biological aspects in addition to these aspects. Thus, another factor different from consumer characteristics may exist, and studying such factors holds a certain significance in consumer behavior research.

#### 4.2 Practical implications

Food neophobia remains an important factor in consumer food choices (Jaeger et al., 2020) and that mitigation is not easy.

These results suggest that small- and medium-sized food industry companies may be able to address this challenge. To date, the method of alleviating refusal to eat has been addressed by adding information, including taste tests. However, the cost of this method is enormous. Although the national government and large companies can afford these costs without any problems, they are unaffordable for small and medium-sized companies. Thus, refusal to eat because of food neophobia is a major barrier to entry. Accordingly, we have demonstrated the usefulness of mitigation measures for refusal to eat caused by food neophobia, which can be done at a relatively low cost of creating an appealing visual appearance. Therefore, this study has several important implications. This study helps better understand "other cultures," which are associated with our bodies and instincts and are difficult to change.

Insect food is expected to become widespread in the future owing to its high nutritional value and low burden on the global environment (de Koning et al., 2020). Previous studies have suggested that consumption contexts, such as safety concerns and a limited eating culture, have a negative effect on eating intentions (Sidali et al., 2018). Furthermore, the results of this study are consistent with the finding that the appearance of insects is a barrier to eating (Orsi et al., 2019). However, the results of

this study indicated that visual novelty influenced food intake. Therefore, it is suggested that when processed into powder, it may promote the spread of eating food with insects.

#### 4.3 Limitation and direction for future study

This study had three primary limitations.

First, we conducted the experiments using a small number of food items. To generalize these results, similar studies on novel foods with different properties should be conducted. Additionally, a survey that discriminates between food neophobia of cuisine and that of the ingredients is an issue that should be assessed.

Second, this study focuses on measuring overt behavior; however, food neophobia is an instinct-based behavioral pattern, and we believe that even if participants answered, “I want to eat it.” and “I might eat it,” they might not eat it because participants might feel more resistance if the food was physically in front of them.

Finally, an effective approach for consumers with a high tendency for food neophobia could not be proposed; this might be due to factors other than consumer characteristics. These factors should be considered in future studies.

#### Acknowledgements

This work was supported by JSPS KAKENHI Grant Number JP 17H07271.

The Author is holding a researcher role in the Graduate School of Business Administration, Kobe University. Thank you for providing the research resources.

This paper is a revised version of the author’s doctoral disseration.

#### References

- 青木宏 (1994) 「食品の嗜好」『日本食品工業学会誌』、第 41 号、1 卷、77—83 頁。  
秋池篤・勝又壮太郎 (2016) 「消費者知識とデザイン新奇性の関係：電気自動車の外観イメージ事例から」『組織科学』、第 49 号、3 卷、47—59 頁。  
Bäckström, A., Pirttilä-Backman, A.-M., & Tuorila, H. “Dimensions of novelty: a social representation approach to new foods.” *Appetite*, Vol.40(1), 2003, pp.299-307.  
Camarena, D. M., Sanjuán, Ana I., & Philippidis, G. “Influence of ethnocentrism and neo-phobia on ethnic food consumption in Spain.” *Appetite*, Vol.57(1), 2011, pp.121-130.  
De Koning, W., Dean D., Vriesekoop, F., Aguiar, L. K., Anderson, M., Mongondry, P., Oppong-

- Gyamfi, M., Urbano, B., Luciano, C. A. G., Jiang, B., Hao, W., Eastwick, E., Jiang, Z.V., & Boereboom, A. "Drivers and Inhibitors in the Acceptance of Meat Alternatives: The Case of Plant and Insect-Based Proteins." *Foods*, Vol.9(9),2020, 1292
- Devine, C. M., Sobal, J., Bisogni, C. A., & Connors, M. "Food choices in three ethnic groups: interactions of ideals, identities, and roles." *Journal of Nutrition Education*, Vol.31(2), 1999, pp.86-93.
- Fenko, A., Leufkens, J.M., & van Hoof, J. J. "New product, familiar taste: Effects of slogans on cognitive and affective responses to an unknown food product among food neophobics and neophilics." *Food Quality and Preference*, Vol.39, 2015, pp.226-276.
- Harris, M. *Good to Eat: Riddles of Food and Culture*. New York: Simon and Schuster, 1985.
- Hoek, A. C., Luning, P. A., Weijzen, P., Engels, W., Kok, F. J., & Graaf, C. "Replacement of meat by meat substitutes. A survey on person-and product-related factors in consumer acceptance." *Appetite*, Vol.56(3), 2011, pp.662-673.
- Jaeger, S. R., Roigard, C. M., Hunter, D.C., & Worch, T. "Importance of food choice motives vary with degree of food neophobia." *Appetite*, Vol.159(1), 2021, 105056.
- Jang, S. C. & Kim, D. "Enhancing ethnic food acceptance and reducing perceived risk: The effects of personality traits, cultural familiarity, and menu framing." *International Journal of Hospitality Management*, Vol.47,2015, pp.85-95.
- Kim, Y.G., Jang, S.Y., & Kim, A. K. "Application of the theory of planned behavior to genetically modified foods: Moderating effects of food technology neophobia." *Food research international*, Vol.62, 2014, pp.947-954.
- McFarlane, T. & Pliner, P. "Increasing willingness to taste novel foods: effects of nutrition and taste information." *Appetite*, Vol.28(3), 1997, pp.227-238.
- Meiselman, H. L., King S. C., & Gillette, M. The demographics of neophobia in a large commercial US sample. *Food Quality and Preference*, Vol.21(7), 2010,pp.893-897.
- Michell, K.A., Isweiri, H., Newman, S.E., Bunning, M., Bellows, L.L., Dinges, M.M., Grabos, L.E., Rao, S., Foster, M.T., Heuberger, A.L., Prenni, J.E., Thompson, H.J., Uchanski, M.E., Weir, T.L., Johnson, S.A. "Microgreens: Consumer sensory perception and acceptance of an emerging functional food crop." *Journal of Food Science*, Vol.85(4),2020, pp.926-935.
- 馬越恵美子 (2011) 『ダイバーシティ・マネジメントと異文化経営』 新評論。
- Modlinska K, Adamczyk D, Goncikowska K, Maison D, Pisula W. "The Effect of Labelling and Visual Properties on the Acceptance of Foods Containing Insects." *Nutrients*, 2020, Vol.12,2498
- Mumcua, Y. & Kimzan, H. S. "The Effect of Visual Product Aesthetics on Consumers' Price Sensitivity." *Procedia Economics and Finance*, Vol.26, 2015, pp.528-534.
- Ngo, M. K., Misra, R., & Spence, C. "Assessing the shapes and speech sounds that people associate with chocolate samples varying in cocoa content." *Food Quality and Preference*, Vol.22(6),2011, pp.567-572.
- Onwezen, M. C., Bouwman, E. P., Reinders, M. J., & Dagevos H. "A systematic review on consumer acceptance of alternative proteins: pulses, algae, insects, plant-based meat alternatives, and cultured meat." *Appetite*, Vol.159(1), 2020, 105058.
- Orsi, L., Voegelé, L. L., & Stranieri, S. "Eating edible insects as sustainable food? Exploring the determinants of consumer acceptance in Germany." *Food Research International*, Vol.125, 2019, 108573.
- Previato, H. & Behrens, J. H. "Translation and validation of the food neophobia scale (FNS) to the Brazilian Portuguese." *Nutrición hospitalaria*, Vol.32(2), 2015, pp.925-930.

- Pliner, P., & Hobden, K. "Development of a scale to measure the trait of food neophobia in humans." *Appetite*, Vol.19(2), 1992, pp.105-120.
- Piqueras-Fiszman, B., Alcaide-Marzal, J., Roura, E., & Spence, C. "Is it the plate or is it the food? Assessing the influence of the color (black or white) and shape of the plate on the perception of the food placed on it." *Food Quality and Preference*, Vol. 24(1), 2012, pp.205-208.
- Raudenbush, B. & Frank, R. A. "Assessing food neophobia: The role of stimulus familiarity." *Appetite*, Vol.32(2), 1999, pp.267-271.
- Spence, C., Okajima, K., Cheok, A.D., Petit, O., & Michel, C., "Eating with our eyes: From visual hunger to digital satiation." *Brain and Cognition*, Vol.110, 2016, pp.53-63.
- Sidali, K. L., Pizzo S., Garrido-Pérez, E. I., & Schamel, G. "Between food delicacies and food taboos: A structural equation model to assess Western students' acceptance of Amazonian insect food." *Food Research International*, Vol.115, 2018, pp.83-89.
- Stone, R.N., Gronhaug, K. Perceived risk: further considerations for the marketing discipline. *European Journal of Marketing*. Vol. 27 (3),1993, pp.39-50.
- Tuccillo, F., Marino, M. G., & Torri, L. "Italian consumers' attitudes toward entomophagy: Influence of human factors and properties of insects and insect-based food." *Food Research International*, Vol.137, 2020,109619.
- Tuorila, H., Lahteenmaki, L., Pohjalainen, L., & Lotti, L. "Food neophobia among the Finns and related responses to familiar and unfamiliar food." *Food Quality and Preference*, Vol.12(1),2001, pp.29-37.
- Verbeke, W., & López, P. G. "Ethnic food attitudes and behavior among Belgians and Hispanics living in Belgium." *British Food Journal*, Vol.107(11), 2005,pp.823-840.
- 内海雅路 (2008) 「情緒的便益による商品価値向上の必要性 - 低関与商品市場を中心に -」『立教ビジネスデザイン研究』、第5巻、31—44頁。
- Veryzer RW Jr & Hutchinson JW. "The influence of unity and prototypicality on aesthetic responses to new product designs." *Journal of Consumer Research*, Vol.24, 1998, pp.374-394.
- Wei, S.-T., Ou, L.-C., Luo, M. R., & Hutchings, J. B. "Optimisation of food expectations using product colour and appearance." *Food Quality and Preference*, Vol.24(1),2012, pp.49-62.
- Yamamoto, M. & Lambert, D. R. "The impact of product aesthetics on the evaluation of industrial products." *Journal of Product Innovation Management*, Vol.11(4), 1994, pp.309-324.
- Zampini M, Sanabria D, Phillips N, Spence C. "The multisensory perception of flavour: Assessing the influence of colour cues on flavour discrimination responses." *Food Quality & Preference*. Vol.18,2007, pp.975-984.

Received : 29 June 2022

Accepted : 24 November 2022

## 研究論文

### 見た目の新奇性が食物新奇性恐怖による摂食拒否に与える影響

地頭所 里紗

龍谷大学政策学部講師

#### <要旨>

食物新奇恐怖症とは、未知の、またはなじみのない食べ物に対する恐れや嫌悪感である。多くの先行研究では、単一の食品のみに着目していたため、食物新奇性恐怖と食品の見た目の新奇性についての十分な検討がほとんどなされていない。本研究では、食品の外見と食物新奇性恐怖による摂食拒否の関係を検討した。

2つの実験の結果、嫌悪食物群／不適切食物群にあたる食品は、食物新奇性恐怖の傾向の程度にかかわらず、摂食拒否が起こりやすいことが明らかになった。また、新奇の食品であっても、見慣れた食品に似た外見であれば、食物新奇性恐怖傾向の高低によって摂食意向に差が見られた。実験の結果から、食品の見た目は、食品恐怖症や摂食拒否の傾向に影響を与えることが示唆された。本研究の主要な貢献は、既存のフード・ネオフォビアに関する先行研究が説明可能な範囲を明らかにしたことである。

#### <キーワード>

食物新奇性恐怖，新奇の食品，摂食行動，エスニックフード，視覚情報