

Effects of Temporal and Social Distance on Food Refusal Caused by Food Neophobia Tendency

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時間的および社会的距離が
フード・ネオフォビア傾向による摂食拒否に及ぼす影響

Abstract

In this study, I attempted to mitigate food neophobia by manipulating psychological distance. Specifically, I examined the relationship between temporal and social distance and food refusal caused by food neophobia.

The results of the empirical study indicate that (1) food neophobia negatively affects the intention to eat novel foods and (2) temporal distance and social distance alleviate food refusal caused by food neophobia.

The theoretical contributions of this study are (1) This study extends the knowledge of consumer behavior research from the aspect of alleviating negative emotions. (2) This study suggests the possibility of elaborating the construal level theory. (3) This study applied the concept of psychological distance to identify situations in which food refusal caused by food neophobia tendency is likely to occur and situations in which it is not likely to occur.

Keywords

Food Neophobia, Eating Behavior, Ethnic Food, Psychological Distance

要 旨

本研究では、心理的距離を操作することによって、新奇の食品に対する嫌悪感であるフード・ネオフォビアによる摂食拒否傾向を緩和することを試みた。具体的には、時間的・社会的距離とフード・ネオフォビアによる摂食拒否との関係を検討した。実験の結果、(1) フード・ネオフォビアは新奇の食物の摂食意向に負の影響を与えること、(2) 時間的距離と社会的距離はフード・ネオフォビアによる摂食拒否を緩和することが明らかになった。本研究の理論的貢献は、(1) 負の感情の緩和という側面から消費者行動研究の知見を拡張したこと、(2) 解釈レベル理論の精緻化の可能性を示唆したこと、(3) 心理的距離の概念を援用して、フード・ネオフォビアによる摂食拒否傾向が生じやすい状況と生じにくい状況を明らかにしたことである。

キーワード

食物新奇性恐怖, 摂食行動, エスニックフード, 心理的距離, フード・ネオフォビア

I Introduction

In this study, I focus on behaviors related to hesitation to eat or attempts to avoid eating in a situation called food neophobia. Food neophobia significantly influences the perceptions and feeding behavior of consumers (Verbeke et al., 2005; Jang and Kim, 2015). This study aims to clarify the effect of psychological distance on food refusal caused by food neophobia tendency, which is “the unwillingness or refusal to eat or the tendency to avoid new foods” and often occurs in the acceptance of novel foods.

II Persuasion and food neophobia

Food neophobia (also known as food novelty fear) is defined as “a reluctance to eat and/or avoidance of novel foods.” (Pliner and Hobden, 1992:105) and refers to an instinct to avoid foods that are originally poisonous.

Behavioral patterns have been noted in humans and other omnivorous animals where-in they recognize that a food item they drank or ate for the first time may potentially be dangerous and thus become wary of it, following which they either hesitate to eat the same item or attempt to avoid it altogether (Pliner and Hobden, 1992). First, I summarize the prerequisites for examining food neophobia from the perspective of consumer behavior research as well as marketing research.

For food neophobia related to consumer behavior research and marketing research, purchasing intent (purchase intention) (Carmarena et al., 2001; Raudenbush and Frank, 1999) and intention to eat (willingness to try) (Tuorila et al., 2001; Bäckström et al., 2003) have been considered relevant variables for analysis. Moreover, food neophobia has been shown to have a direct or indirect negative

effect on these variables (Kim et al., 2014).

The practical purpose of conducting research on food neophobia is to alleviate the tendency toward food refusal and encourage the acceptance of novel foods among consumers. Therefore, in the field of consumer behavior, these studies can be positioned as part of persuasion research.

Food neophobia, as the name suggests, refers to a type of fear emotion, and “fear” is a key concept in persuasion and attitude change research. In this section, I summarize the relationship of “fear” to various studies on food neophobia in the context of persuasion and attitude change.

Fear-arousing communication is a form of persuasion that is focused on fear, and is defined as “persuasive communication intended to promote the recipient’s acceptance of a recommendation for a specific coping behavior to deal with a threat by emphasizing the danger of the threat when the sender is trying to persuade the recipient about a particular persuasive topic” (Fukada, 1986, p. 187). In other words, it refers to an attempt to make the persuasion recipient experience fear and then use that fear to encourage acceptance of the message.

In early research on fear-arousing and persuasion effects, the tension reduction model (Hovland, et al., 1953) was used, wherein the persuasion effects are motivated by the reduction of tension caused by fear, an unpleasant emotion. In the tension reduction model by Hovland et al. (1953), when recommendation information is effective for fear avoidance, the persuasive power of the recommendation information is enhanced, thereby resulting in long-term attitude change. On the other hand, if the recommendation information is ineffective for fear avoidance, the effectiveness of persuasion becomes weakened. However, stronger fear arousal is not always better.

Some studies have shown that persuasion is more effective when weak fear emotions are evoked, compared with stronger ones (Janis and Feshbach, 1953; Haeffner, 1956; Janis and Terwilliger, 1962).

In addition to the aforementioned studies on fear arousal and persuasion, some studies have attempted to clarify the influence of situational factors on the effectiveness of persuasion through fear-arousing communication. Berkowitz and Cottingham (1960) demonstrated that there is no difference in the effectiveness of persuasion, depending on the intensity of fear arousal when people interested in the communication are low. Moreover, Dewolfe and Governale (1964) suggested that fear arousal can facilitate attitude change when people perceive that a threat can be averted through persuasive communication.

Most studies in the literature have promoted avoidance behavior through fear arousal. Alternatively, fear-induced avoidance behavior is positioned as something that should be induced, instead of being controlled. Few studies have focused on developing methods for controlling fear-induced avoidance behavior. Therefore, we believe that focusing on alleviating food refusal caused by food neophobia tendency can help us to address the research gap on persuasion and attitude change, with relation to controlling avoidance behaviors.

III Food neophobia tendency and construal level theory

Psychological research has pointed out that the basic emotion of instinctive fear is a lower-order emotion (Eyal and Fishbach 2010). Therefore, I would like to use construal level theory to operationalize the “non-dislikable fear.” Construal level theory posits that an individual’s subjective interpretations of objects

and events change in accordance with the psychological distance they perceive between them (Trope and Liberman, 2000). Originally, this theory explained how the criteria for evaluating consumer attributes change depending on the psychological distance between them. Chandran and Menon (2004) demonstrated that consumers perceive risk more closely and concretely when the psychological distance is closer, rather than when it is far. They suggested that when the psychological distance (temporal distance) is close, this leads to an increase in perceived risk, promotion of preventive behavior, or inducing anxiety about the difficulty, compared with when this distance is far. In other words, individuals may be less likely to experience negative emotions, such as risk and anxiety, if the psychological distance is further, even for the same object. Therefore, in this study, I operationalized the non-dislikable fear, which is fear without risk, by manipulating the psychological distance.

According to the construal level theory, when the psychological distance is far, people interpret objects as abstract, simple, structural, decontextual, intrinsic-superior, goal-relevant, and having a higher order. However, when the psychological distance is close, people interpret objects as more concrete, complex, unstructured, contextual, and having a lower order. Typical psychological distances include temporal distance, which refers to a distant or near future; spatial distance, which refers to a physically close or distant place; virtual distance, which refers to whether people have experienced the events by themselves, or are likely to experience it; and social distance, which refers to the similarity or closeness of oneself to others and their groups (Trope and Liberman, 2003).

Regarding temporal distance, Nussbaum et al. (2006) highlighted that consumers tend

to focus on concrete information when thinking about the near future and simultaneously ignore concrete information when considering the distant future. When consumers consider purchasing a product, they evaluate the product based on two factors: functions that are abstract and highly relevant to the intended use of the product and functions that are concrete and less relevant to the intended use of the product. Abstract or higher-order attributes are more significant if the temporal distance to the point of purchase is far, and more concrete or lower-order attributes are more significant if the temporal distance to the point of purchase is short (Trope and Liberman, 2000).

The early stages of construal level theory research focused on the temporal distance between psychological distances (Trope and Liberman, 2003).

Subsequently, various concepts of distance, such as social, spatial, and empirical distance, have been extended. Among them, research has primarily focused on temporal and social distance (Togawa and Yashima, 2014). Regarding social distance, Zhao and Xie (2011) demonstrated that recommendations from socially distant people (students from other universities) lead to increase in the preference for digital cameras when the temporal distance is far, and recommendations from socially close people (familiar people) lead to increase in the preference for digital cameras when the temporal distance is close.

Most research on construal level theory has focused on general consumer goods, such as radios and electronic dictionaries (Abe, 2010; Trope and Liberman 2000; Zhao and Xie, 2011), thus relatively low empirical research has examined the food sector. Furthermore, communal eating had a significant impact on food selection. Therefore, consumption behavior may differ between general consumer

goods and food. Based on these considerations, in this study, I focused on the basic psychological distance dimensions of temporal and social distance among the psychological distances.

Based on the premise that food neophobia is an instinctive behavioral pattern, as mentioned above, as well as in conjunction with the findings of psychological research, it is classified as a rather low-order attribute. Therefore, if the temporal distance is far, food neophobia may be perceived as an abstract “non-dislikable fear.” Moreover, the tendency to refuse to eat may be weaker and the intention to eat may be higher, compared to when the temporal distance is close. Hence, based on the above considerations, this study proposes the following hypothesis:

Hypothesis 1: If there is a temporal distance to eating, there would be less eating refusal caused by food neophobia tendency (higher eating intentions), compared with when the temporal distance is shorter.

Situational factors, such as who to eat with, strongly impact eating behavior (Iizuka, 2014). In many cases, young children learn that food is safe when they observe their parents or other familiar adults eating it. In this case, an adult refers to a person with a very close social distance, such as a mother (Imada, 2005). Accordingly, in the context of the reception of novel foods, the element of learning is expected to be stronger, thus this paper proposes the following hypothesis:

Hypothesis 2: Intentions to eat novel foods are higher when eating with people in closer social distance, compared to eating with people with more alienated social distance.

IV Food neophobia and psychological distances

1. Experiment 1:

Food neophobia and temporal distance

In this section, we conduct an experiment on a web page with a fictional advertisement using hummus, a Middle Eastern dish. Considering the nature of food, conducting experiments with actual food is difficult, owing to hygiene and safety issues; therefore, I decided to conduct experiments on a web page.

Method

The study was conducted between November 29 and December 3, 2016, among the monitors of And D Co. Eating refusal caused by food neophobia is influenced by demographic attributes (Olabi et al. ,2005; Salgado et al. ,2016). Therefore, in this study, to control for the influence of other personal attributes on the tendency for food refusal, I limited my study to male and female participants aged between 25 and 30 years who lived in the Tokyo metropolitan area, excluding the counties, other islands of Tokyo, and students. No significant differences were noted in eating intentions, according to gender, occupation, residence (within the 23 wards of Tokyo and elsewhere), or age. However, there was a significant difference in eating intentions based on whether the participants were employed or unemployed ($t(496) = -2.55, p < 0.05$). Therefore, to control the experiment conditions, the analysis was conducted only with employed individuals.

A total of 464 valid responses were received.

The sample base used in the analysis were 48.9% male 51.1% female participants with an average age of 27.9 years.

The experimental procedure is as follows. Participants were requested to rate their eating intentions (1 = “I would be happy to try this cuisine.” 2 = “I am likely to eat this cuisine if the opportunity arises.” 3 = “I am more likely to order this cuisine.”) on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree) after presenting the photographs. Following this, they were asked to answer questions to measure their food neophobia tendency.

At this point, we manipulated the temporal distance by presenting the premise “if I eat today” or “if I eat in six months.” This follows the manipulation of temporal distance in previous research (Chen, 2016), which supports the construal level theory for food selection behavior. In addition, we followed the method used in research on food neophobia tendency and requested participants to answer the FNS of Pliner and Hobden (1992), then divided them into two groups—high and low food neophobia tendency—based on the median.

Prior to the experiment, screening was performed to select the study participants. Based on the aim of the study to measure attitudes toward “unknown or unfamiliar” foods, participants were shown a picture of hummus beforehand, and the degree of familiarity with hummus was measured using the familiarity scale developed by Bäckström et al. (2003) Participants who were unfamiliar with hummus participated in the experiment on the website. Among the responses obtained, those who answered all FNS questions with the same option (with the exception of option 4, which represents “Neither”) were excluded from the analysis. The rationale for these manipulations is that the questionnaire on food neophobia comprises five reversed and five ordered items, and the answers with all the same options are clearly contradictory.

	Temporal distance (near)	Temporal distance (far)
Psychological distance	51%	49%
High-FNT	3.32	3.09
Low-FNT	4.34	4.78 *

Figure 1 : Eating intentions of Temporal distance (near/far) × Food neophobia (high/low)

Results

First, the validity of the scales used in the analysis was confirmed. Cronbach's alpha coefficients were calculated for the internal validity of each scale using SPSS reliability analysis: FNS ($\alpha = .80$) and eating intention ($\alpha = .93$).

Moreover, 10 items of the FNS were synthesized to create a food neophobia propensity variable. The mean and median values of the food neophobia tendency variable were 3.72 and 4.1, respectively. I used 4.1 as a criterion to classify the participants into two groups: those with a high tendency toward food neophobia and those with a low tendency toward food neophobia. I also conducted a two-factor ANOVA with food neophobia tendency (high group/low group) and time distance (today/six months later) as independent variables and eating intention as the dependent variable. There were 237 participants in the low food neophobia tendency group, 227 in the high food neophobia tendency group, 235 in the near temporal distance group, and 229 in the far temporal distance group.

ANOVA results show a significant difference between the main effect of food neophobia and the interaction effect of 'food neophobia and temporal distance ($F(1,460) = 97.81$, $p < 0.001$, $F(1,460) = 5.42$, $p < 0.05$). The interaction between food neophobia and temporal distance suggests that intentions to consume novel foods may be affected by the interaction of two factors: temporal distance and food neophobia. I performed a simple main-effects test because the interaction effect was significant.

The results indicate that the simple main effect of temporal distance was significant ($F(1,460) = 4.56$, $p < 0.05$) in the group with lower food neophobia tendency, and eating intention was significantly higher when the temporal distance was further. In contrast, in the group with a higher food neophobia tendency, no difference was noted in eating intention based on temporal distance.

H1 was partially supported because the simple main effect of temporal distance was significant ($F(1,461) = 4.56$, $p < 0.05$) only in the group with lower food neophobia, and eating intention was significantly higher when the temporal distance was further. However, the appeal of temporal distance was ineffective for consumers with high food neophobia. Consequently, based on the above analysis, I suggest that consumers with lower food neophobia are less likely to experience food refusal caused by food neophobia when the temporal distance is far, compare to when it is close.

2. Experiment 2:

Food neophobia and social distance

Similar to Experiment 1, Experiment 2 was conducted to clarify the effect of social distance on rejection of contact due to food neophobia. The experimental design was a two-factor between-participants plan: social distance by time (close/far) and food neophobia (high/low). The procedure was identical to that of Experiment 1.

The study was conducted from February 10 to February 15, 2018, using the monitors of And dei Co. Eating refusal caused by food

	Social distance (near)	Social distance (far)
Psychological distance	48%	52%
High-FNT	3.32	2.49
LOW-FNT	3.89	3.3

Figure 2 : Eating intentions of Social distance (near/far) × Food neophobia tendency (high/low)

neophobia is influenced by demographic attributes. Therefore, in this study, to control for the influence of other personal attributes on the tendency to refuse eating, I limited the participants to male and female university students living in the Tokyo metropolitan area, excluding the counties and other islands of Tokyo.

There were 96 valid responses. The sample base used in the analysis were 49% male and 51% female participants, with an average age of 21.7 years.

Results

First, the validity of the scales used in the analysis was confirmed. Cronbach's alpha coefficients were calculated for the internal validity of each scale using SPSS reliability analysis: FNS (alpha = .81) and eating intention (alpha = .96).

Moreover, 10 items of the FNS were synthesized to create a food neophobia propensity variable. The mean and median values of the food neophobia tendency variable were 3.8 and 4.0, respectively; thus, I used 4.0 as a criterion to classify the participants into two groups: those with a high tendency toward food neophobia and those with a low tendency toward it. I conducted a two-factor ANOVA, with food neophobia (high/low) and social distance (close/alienate) as independent variables, and eating intention as the dependent variable. The manipulation check consisted of two questions: "My values are similar to those of the person I have envisaged" and "My relationships with the people I envisage are important to me" ($p > 0.05$ and $p > 0.01$, respec-

tively), which indicates that the experimental manipulation was successful.

The ANOVA results show a main effect of food neophobia and social distance ($F(1,92) = 9.24$ $p < 0.01$ and $F(1,92) = 8.84$ $p < 0.01$). Consumption intention was higher when social distance was close, compared to when it was far.

Although the primary effect of social distance was significant, H2 was supported because eating intention was significantly higher when social distance was closer. These results suggest that food refusal caused by food neophobia is less likely to occur when eating with people who are socially closer.

V Conclusion

1. Findings

The two main findings of this study are as follows: (1) Food neophobia negatively affects the intention to eat novel foods and (2) temporal distance and social distance alleviate food refusal caused by food neophobia.

First, food neophobia had a negative effect on the intention to consume novel foods. The main effect of food neophobia tendency was confirmed in the two experiments conducted in this study, with significantly lower intake intentions in the high food neophobia group than in the low one. This finding is consistent with findings in the literature.

Second, in the group with low food neophobia, the intake intention of novel food was significantly higher when the temporal distance was far, compared to when it was close. This finding suggests that the manipulation of

psychological distance may alleviate food refusal caused by food neophobia. However, in this study, the high food neophobia group remained consistently high in food refusal, regardless of psychological distance.

Furthermore, intentions to eat novel foods were higher when eating with people who were socially close, compared with those who were not. This result contradicts findings in the literature on construal level theory, which suggests that psychological proximity is associated with lower-order interpretations. Closer distance led to lower-order interpretation. With respect to temporal distance, the dimensions of temporal and social distance, which have been found to have roughly similar effects in construal level theory, may not be applied in food selection. This may be because the formation of food preferences is strongly influenced by learning factors and is firmly related to the environment wherein the individual grows up and the family, society, and culture that surrounds it (Aoki, 1994). Food preferences are acquired by learning about safe foods by watching one's parents or other close ones eat. Therefore, close social distance to the person eating with them would lead individuals to be less fearful.

2. Theoretical contribution

This study aimed to clarify the effect of psychological distance on food refusal caused by food neophobia tendency. For this purpose, I conducted an empirical study to address the following two research questions. (1) How does temporal distance affect food refusal caused by food neophobia? and (2) How does social distance affect food refusal caused by food neophobia?

The results of the empirical study reveal that (1) food neophobia negatively affects the intention to eat novel foods and (2) temporal distance and social distance alleviate food re-

fusal caused by food neophobia.

The theoretical contributions of this study are as follows: (1) This study extends the knowledge of consumer behavior research from the aspect of alleviating negative emotions. (2) This study suggests the possibility of elaborating the construal level theory. (3) This study applied the concept of psychological distance to identify situations in which food refusal caused by food neophobia tendency was likely to occur and situations in which it was not.

First, this study is an extension of consumer behavior research from the perspective of alleviating negative emotions. Some hypotheses in this study were supported, while others were not.

One of the factors is that food neophobia has a stronger biological aspect than the behavioral patterns targeted by previous consumer behavior research. Product acceptance has been considered from two perspectives: functional and emotional (Utsumi, 2008). In addition, food neophobia has more biological aspects. Thus, there may exist another factor that differs from the consumer characteristics discussed in previous research and examining these factors can have certain significance for consumer behavior research.

Second, given the ingestion of novel foods, regarding temporal distance, I confirmed that lower-order interpretations were made when psychological distance was close (i.e., more fearful) as shown in studies on traditional construal level theory; however, the results were the opposite for social distance. Moreover, previous studies, such as that of Kim et al. (2008), emphasized lower-order attributes when both social and temporal distances were close in situations where psychological distance was close. However, in this study, I found that the lower-order attribute of "instinct-induced fear" was less important

when social distance was close. Although this has the possibility of a unique result for food-related learning behavior, another theoretical significance of this study is that it suggests that temporal distance and social distance may have different directions of influence on the construal level depending on the nature of the products.

Third, we applied the concept of psychological distance to identify situations wherein food refusal caused by food neophobia was likely to occur and situations in which it was not. Traditionally, food neophobia has been alleviated by additional information, including taste. Our attempt to manipulate fear through psychological distance based on construal level theory may complement the existing research on food refusal caused by food neophobia.

3. Practical contribution

The practical contribution of this study is that it suggests that SMEs can deal with food neophobia. Traditionally, food neophobia has been alleviated by additional information. These costs may be affordable for the state and large enterprises, but they cannot be borne by a single SME.

In this study, I demonstrated the usefulness of psychological distance as a relatively low-cost way of alleviating food refusal caused by food neophobia. In particular, it was demonstrated that food refusal caused by consumers' food neophobia was weaker when the temporal distance was far. These results should help small-and medium-sized food industry enterprises take concrete measures to alleviate food refusal caused by food neophobia.

4. Limitation and direction for future study

Finally, I would like to mention the lim-

itations of this study and avenues for future research. ① Limited samples and target cuisines, ② Could not propose an effective approach to consumers with a high tendency of food neophobia.

First, I conducted the experiments using a small number of food items. To generalize the results, we need to conduct more similar studies on novel foods with different properties. In addition, a survey that discriminates between food neophobia of cuisine and food neophobia of the ingredients themselves is an issue for the future.

Second, the reason that an effective approach could not be proposed for consumers with a high tendency for food and neophobia is that there may have been factors other than the consumer characteristics discussed in consumer behavior research.

In the field of neuroscience, Plassmann et al. (2008) experimentally clarified the effect of price on product evaluation and its neural mechanism. Specifically, they allowed participants to drink wine and showed the price, and then took the brain function image by fMRI at that time. As a result, when high-priced wine was presented, it was observed that activation of reward-related sites was centered on (orbitofrontal cortex inside the brain). This is in agreement with the results of the wine preference survey using the questionnaire, thereby suggesting that product evaluation could be estimated by the activity of reward-related sites, such as the medial orbitofrontal cortex (OFC). It was also observed that activation of reward-related parts of the brain in response to stimuli led to positive evaluations from participants in other studies using real-life brands and products as stimuli. In contrast, studies have pointed out that food neophobia is associated with the amygdala (Borsini and Rolls, 1984). Moreover, it is difficult to encourage consumers with a strong

tendency toward food novelty to change their attitudes using the methods developed in the literature thus far (Fenko et al., 2015). Based on the facts mentioned above, we inferred that the mechanism of its occurrence differs from the negative attitudes assumed in consumer behavior research and refusal to eat due to food neophobia. Thus, in the field of food neophobia research, there may be another factor different from the consumer characteristics discussed in the literature, and I considered that studying such factors can have certain significance for future consumer behavior research.

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