Scientific paper

Innovation influences liking for chocolates among neophilic consumers

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ARTICLE INFO

ABSTRACT

The fear of trying new foods is a major barrier for entry for innovative ingredients, foods, flavors, or cuisines into the market place. We explored the relationship between perceived innovation and liking for chocolates and degree of neophobia. Line scales were used to measure: innovation, liking, and perceived dollar value for three chocolate confections. One was a traditional confection (palette d'or), and two others were designed to be more innovative (white miso with dark chocolate and white chocolate with candied black olive). An analysis of variance found that panelists ($n=44$) perceived significant ($p < 0.01$) differences among the chocolates in innovation, and liking, but not dollar value or estimated caloric content. The chocolate rated as the most innovative was also rated as the least liked. This finding is significant since the mean neophobia score of our subjects was quite low and very few of them would have been classified as neophobic. This current work suggests that acceptance of innovative new foods is dependent, in part, upon factors that transcend neophobic mindsets. Chefs and product developers should be aware of the fact that even among neophilic consumers who are quite willing to consume novel foods, there is a possibility that a food might be too innovative, resulting in a negative impact on liking.

Introduction

The livelihood of chefs and product developers depends upon the successful introduction of new foods to the market place. However, menu items and commercially packaged goods that are new and innovative have a poor success rate (Moskowitz et al., 2006). On the one hand consumers desire new, innovative food products but often reject them in favor of the more familiar product. This approach-avoidance response to new foods has been explained as reflecting the omnivore's dilemma (Rozin, 1976).

As omnivores we are attracted to new foods which will increase our dietary variety, in turn increasing the probability of eating a diet which is adequate in nutrients (Foote et al., 2004). Eating a varied diet also protects us from starvation in times of food scarcity. On the other hand, any new, unfamiliar item we ingest might be toxic rather than nutritious, and therefore not be a food at all. Because of this danger humans show neophobia to new foods (Rozin, 1976).

Humans therefore have a conflict (the omnivore's dilemma) between our desire to try new foods (neophilia) and a rejection of them (neophobia). So people might desire to go to a new restaurant but hesitate to go to one if it serves an unfamiliar cuisine. If they go to a new restaurant they might order a dish with a name they recognize or ingredients with which they are familiar rather than try the innovative and unfamiliar. Chefs often work toward obtaining a "balance" between the novel and the familiar.

The degree to which a new food is novel will affect its acceptance. Entirely new products are much more difficult for people to accept than are those that are only slight "improvements" (Robertson and Gatignon, 1991). The latter are more familiar than are the entirely new items because they are part of a familiar category. Line extensions are less risky product development endeavors than developing a food for a new product category. New foods might be more accepted if they are seen as improvements and not as entirely novel.

This is particularly true among consumers who exhibit more neophobia than neophilia. People vary in the degree to which they exhibit these two traits. Those who are high in neophobia present a challenge to chefs who want to produce creative, innovative dishes that are still liked and accepted by consumers. Chefs want to produce innovative dishes but consumers, particularly those high on the trait of neophobia, might reject foods that are too innovative.

Neophobia reduces the willingness to try new foods and also results in a low level of liking for the taste of new foods (Arvola et al., 1999).

Liking for new foods increases with exposure to those foods as they become more familiar (i.e., the mere exposure effect, Birch and Marlin, 1982; Pliner, 1982; Zajonc, 1968). However, because novel foods are usually not well-liked on first exposure, they might never be eaten again, preventing the increase in liking with exposure.

Pliner and Hobden (1992) developed the FNS (Food Neophobia Scale) to measure the degree to which people have the trait of neophobia. It contains 10 questions such as "I am constantly sampling new and different foods" and "I am afraid to eat things I have never had before". People who are more neophobic will be less likely to sample new foods and therefore not come to like them.

This study investigates how the degree of innovation affects the degree of liking for chocolate confections among consumers with varying levels of neophobia. *Chocolate confections* is a category of foods that is familiar and well-liked by most people. Therefore some degree of flavor and design innovation in this common food category should be accepted by consumers and innovative confections should be well-liked. This is particularly true if the consumers are not neophobic. Neophobic consumers might like a chocolate confection with a more traditional taste profile but not like confections with more innovative flavor profiles. Neophilic consumers might like chocolates which are more innovative, but they too might find chocolates that are too innovative less liked than only moderately innovative ones.

The three chocolate confections used in the present study were designed and prepared by a world renowned pastry chef. The chocolate designed to be the least innovative was a "Palete d'or" which had a traditional flavor profile and was decorated with a piece of gold leaf. The other two had flavors that were more innovative (i.e., white miso with dark chocolate and white chocolate with candied black olive). Since the Palete d'or was designed to be the least innovative and least novel we expected this chocolate to be liked more than the other two by the neophobic participants. However, we thought it possible that non-neophobic subjects would find the more innovative chocolates to be liked as much, if not more than, the less innovative one. In this group the newness of the flavor of a food in a familiar category might increase liking that is not reduced by fear of the new (neophobia). However, a very high degree of innovation might reduce liking in this group as well.

Materials and methods

Participants

Forty-four consumers (12 males and 32 females) volunteered to participate in the study as part of a conference presentation given by the Culinary Institute of America (CIA) at a meeting of the Eastern Psychological Association. Ages ranged from 20 to 76 years (M=37, SD=17 years). They received no compensation for their participation. The study was approved by the Montclair State University IRB.

Chocolate confections

The three chocolate confections (Palete d'or with a traditional flavor profile and piece of gold leaf, white miso with dark chocolate, and white chocolate with candied black olive, (see Fig. 1) were presented in a counterbalanced order on clear plastic serving trays lined with cocoa coated rice puffs (as an "edible base"), and labeled with 3 random three-digit numbers.

Fig. 1. Chocolate confections: (A) Palete d'or [traditional], (B) white miso with dark chocolate, (C) white chocolate with candied black olive.

Procedure

People attending a session about research at the CIA at a psychology conference were asked if they wanted to participate in a study evaluating chocolate confections. They were given a tray of three chocolate confections and a sheet asking them to rate how innovative the chocolates were, how much they liked the flavor of the chocolates, and how expensive they thought each chocolate would be. The ratings were made by bisecting three 135 mm lines whose ends were labeled "not innovative" to "very innovative"; "dislike extremely" to "like extremely", and "not expensive" to "very expensive". The sheet also asked them to estimate how many calories each of the confections contained. They were also given the Food Neophobia Scale (FNS; Pliner and Hobden, 1992) to assess their level of neophobia. They tasted the chocolate confections and evaluated them at their seats. When they were finished the trays and data sheets were collected by research assistants.

Statistical analysis

Repeated measures ANOVA's were used to determine if there were significant effects of chocolate type on perceived innovation, liking, expense, and caloric content for all subjects tested. Post-hoc Bonferroni corrected t-tests were used to determine differences between pairs of chocolates for innovation and liking. T-tests were then used to assess differences in innovation and liking ratings of the white chocolate with candied black olive (the most innovative chocolate) between participants who were more or less neophobic based on a median split. This last test was conducted only on the ratings of the white chocolate with candied black olive because it was the only one of the three that was found to be innovative. It therefore should have generated the biggest difference between those subjects who were and were not neophobic.

Results

Innovation

Chocolates were rated significantly differently on degree of innovation, $F(2,86)=17.84$, $p < .001$. Post-hoc Bonferroni corrected t-tests found that the white chocolate with candied black olive was perceived as significantly more innovative than both the white miso with dark chocolate and Palet d'Or chocolates (Fig. 2).
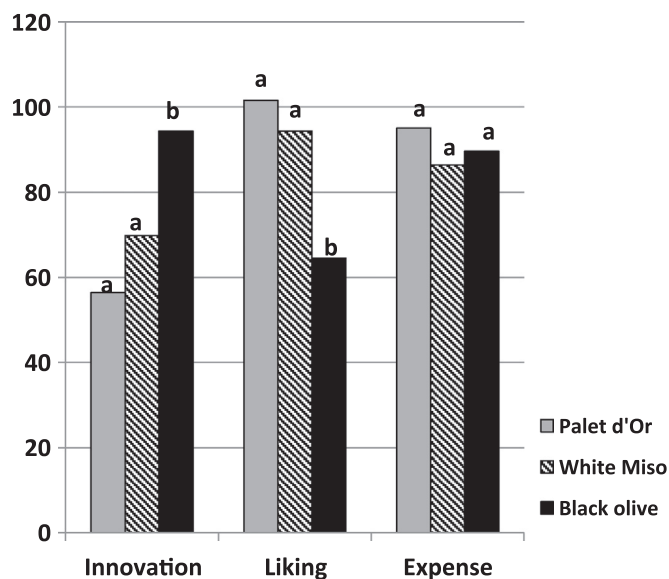

Fig. 2. Mean Innovation, Liking, and Expense ratings for the three chocolates.