ORIGINAL ARTICLE

The Impression of Deliciousness through Food Photography

– A Photographer’s Approach to Test the Commonly Manipulated Factors
and the Interactions on the Food Image Creation Process –

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Abstract: In food photography, factors like the camera angle, background, lighting, light color, and decorative elements are commonly manipulated to motivate consumption through the impression of deliciousness. Studies have demonstrated these factors’ relevance on several subjects related to food perception. Nevertheless, the effect that these factors might have on the impression of deliciousness remains unclear. Therefore, to comprehend visual deliciousness perception, this study tested food images where each factor was manipulated independently and tested the interactions between the factors. The results concluded that although the light color, number of decorative elements, and the type of decorative elements individually affected the impression of deliciousness, the interaction between these three factors did not have any effect. However, interactions between the light color and type of decorative elements; and the number and type of elements affected the impression of deliciousness, evidencing that the manipulation of such factors partially modulates the impression of deliciousness.

Keywords: Food images, Food photography, Deliciousness

1. INTRODUCTION

In food photography, image composition is commonly defined as how the objects are arranged within the image frame to guide the viewer’s gaze and attention towards specific areas or objects [1,2]. In addition, food photographers use the image composition to motivate consumption through the impression of deliciousness by displaying the food in the most appealing way possible. To achieve this, photographers often manipulate a series of factors like the camera angle (Angle); the number of light sources (Lighting); the background of the image (Background); the color temperature of the light (Color); and the amount, type and position of the decorative elements when creating the images [3-5].

The criteria photographers use to manipulate the factors is frequently determined by the food’s visual attributes [6]. First, the camera angle is manipulated to emphasize the food’s texture and/or shape (high-angle position) or the food’s layers and height (low-angle position). The different camera angles allow the spectator to perceive details regarding the food’s ingredients, layout, and table settings. Moreover, studies have demonstrated that manipulating the camera angle invokes different emotions like attractiveness, tastiness, and trendiness [7].

Second, photographers manipulate the background to highlight the food and create contexts regarding the food’s

ingredients, dining experience, etc. [8]. However, studies have shown that although there is an effect of the background’s color on food attractiveness, each food category has a particular background color that enhances the attractiveness of the food [9]. In addition, other studies used a broader definition of background, including the tableware (utensils and dishware) as part of the background, concluding that the material and color of the tableware affects the taste [10,11] and the appetite [12] of the spectator.

Third, the lighting is manipulated to emphasize the food’s ingredients and control the color and shadow contrast [5]. Additionally, the lightning manipulation aims to cue the spectator into believing that the food is fresh, which could affect the food’s taste, the freshness perception, and the impression of deliciousness. So far, studies on luminance distribution [13] have tested how low contrast lightning affects the impression of freshness, concluding that the visual perception of freshness is affected by the luminance distribution.

Fourth, photographers manipulate the light’s color to reproduce with accuracy the different colors of the food. Food images are often created in places where the light color is yellow, white, or the mix of both. As a result, the food colors may be unrealistic or over-saturated, making the food not be perceived as delicious or appetizing when the complex food colors have a blue or green tone [14]. Several studies investigated the effect of light color on topics like food consumption [15,16], taste perception [17-19], and

taste expectation [20]. The studies used light colors like green, blue, yellow, red, and white, revealing that blue light negatively affects the mentioned topics compared to white and yellow light.

Lastly, the decorative elements are manipulated to create a context regarding situations where the food could be eaten by adding complementary elements in the nearby surroundings. The manipulation often occurs on three different dimensions: The amount, the type, and the position of the decorative elements. Regarding the amount and position, photographers use the visual clutter to add or remove decorative elements adjusting their position within the frame. On the other hand, the type of decoration is selected according to the ingredients of the food itself. Decorative elements such as ingredients, side dishes, or tableware are among the most used in food images. A study used this factor on showcases to determine whether the decoration affects purchase behavior [21]. This study suggested that decorating the food positively affects purchase behavior when the spectator has experience and interest in the food.

In short, the literature suggests that manipulating the camera angle, background, lighting, light color, and decorative elements affects food perception in a wide range of subjects. However, little attention has been given to the possible effect that these factors may have on the impression of deliciousness, making this study necessary for consideration. Moreover, most of the literature on food-related subjects uses live food evaluations where senses like smell may have influenced the evaluations. For this reason, this study aims to investigate whether the commonly manipulated factors affect the impression of deliciousness.

2. OBJECTIVE & HYPOTHESIS

This study aims to investigate the effect of the commonly manipulated factors on the impression of deliciousness. By creating and testing a series of food images where each factor is manipulated independently and later test the interactions between those significant factors, this study could be meaningful for photographers since the results may provide information regarding the modulation of the impression of deliciousness on food images. Furthermore, the methodology proposed in this study could also be helpful in different fields of study since the photography techniques used, were intended to maintain consistency in the food images.

The hypotheses were formulated using the assumption that the impression of deliciousness motivates consumption

affecting purchase behavior. Considering that the impression of deliciousness may have a similar pattern, the following hypotheses were established.

- H1: Warm light color increases the impression of deliciousness.
- H2: The manipulation of the decorative elements in all three dimensions affects the impression of deliciousness.
- H3: The interaction between the decorative elements and the light color affects the impression of deliciousness.

3. METHODOLOGY

To test the hypotheses, two experiments were conducted. In the first experiment, a set of food images was created to test the effect of each factor individually. The second experiment, a different set of images was created to test the interactions between the factors that affected the impression of deliciousness in the first experiment.

4. EXPERIMENT 1

4.1 Objective

The objective of this experiment was to identify whether the manipulation of the camera angle, background, lighting, light color, and decorative elements affects deliciousness perception.

4.2 Methodology

4.2.1 Food category selection

A screening study was conducted to determine the food category for the visual stimuli. The screening consisted of a survey where participants answered on a 0 to 6 scale their experience and likeliness towards seven different food categories (fried chicken, pizza, sushi, cheeseburger, steak, curry, and pasta). From the screening, cheeseburgers were selected since it scored highest both experience ($M = 5.5$, $SD = 0.5$) and likeliness ($M = 5.4$, $SD = 0.49$).

4.2.2 Factors conditions

Since the manipulation of each factor varies according to the visual characteristics of the food, interviews were held with a panel of 5 food photographers to determine the conditions used for both experiments (see Table 1).

Camera angle: The interviews showed that the various camera angles are commonly grouped into three major groups. Low-angle from 0 to 35 degrees, Medium-angle between 35 and 65 degrees, and High-angle between 65 to 90 degrees. To represent each group, 0-, 45-, and 90-degrees angles were selected.

Table 1: Factors conditions

Manipulated Factor	Condition	Manipulated Factor	Condition
Camera Angle	0 Degrees	Number of Elements	0 Elements
	45 Degrees		1 Element
	90 Degrees		2 Elements
Background	Black	Type of Element	Fries
	White		Rice
	Texture		Tofu
Lighting	1 Light	Position of Element	Front Left
	2 Lights		Front Right
	3 Lights		Back Left
Light Color	Warm Light		Back Right
	Daylight		
	Shade

Figure 1: Equipment layout for image creation

Type of Background (Background): Photographers classified the backgrounds into two categories: solid-color and texture-based. Since the literature suggested an effect of the background color on food attractiveness, it was decided to use *black* and *white* colors for the solid-color and texture-based backgrounds.

Number of Light sources (Lighting): Like the camera angle, the light sources are grouped according to their function. Main lights or hero lights are the primary lights used to illuminate the food. Sub lights or filler lights are used to slightly illuminate darker areas of the food, and Background lights, are used to illuminate the background of the image. To represent each group, *1-Light* (main light), *2-Lights* (main + sub) and *3-Lights* (main + sub + background) conditions were selected (see Figure 1).

Color of the light (Color): Photographers classified the light's color according to their color temperature. Warm light, yellow light or tungsten light (around 3000K), Daylight or White light (around 5600K), and Shade light or Blue light (around 9500K).

Number of elements (NE): Photographers defined this factor as the clusters of decorative elements surrounding the food. For this factor, a condition with no elements, 1 cluster, and 2 clusters of decorative elements were considered.

Type of element: The interviews showed that the decorative elements are commonly composed of edible objects consumed alongside the food in the form of side dishes. Additionally, decorative elements can also be composed of inedible objects that provide a context to the experience of consuming the food or a mixture of both. In either case, photographers indicated that the decorative elements must have a certain degree of association with the food. Therefore, edible objects were selected to represent this factor since the associations from inedible objects and the food may have a broader range for interpretation. A screening using side dishes that are offered on restaurants that serve cheeseburgers (fries, lettuce-tomato salad, corn, onion rings, beans, rice, tofu) was conducted to determine each factor level. From the results, Fries, Rice, and Tofu were selected to represent high, medium, and low levels of association with the food.

Position of the element: Photographers established that the position where the decorative elements are placed often depends on the camera angle. For Low and Medium camera angles, the following conditions were considered. Front Left side of the food (FL), Back Left side of the food (BL), Front Right side of the food (FR), Back Right side of the food (BR). As for High camera angles, Top, Bottom, Left, Right, or any diagonal position were considered.

4.2.3 Image creation and Visual Stimuli

The image creation implied setting all factors on a specific condition, except for the factor that is being manipulated. For instance, the manipulation of the camera angle meant that only the camera angle would be manipulated while the background, lighting, light color, and decorative elements were constant. In this sense, to maintain the consistency of the factors throughout the shooting process, it was decided to create a template that was used as a starting position for the conditions of each factor. A screening with food photographers resulted in the following conditions: low camera angle, black background, two daylight light sources, and 3 clusters of highly associated side dishes (fries, salad) positioned at each side of the food (see Figure 2). Three clusters of side dishes were chosen to differ the template from the factor manipulation.

Figure 2: Template image

Figure 3: Visual Stimuli

(i) 0, 45, and 90 degree angle conditions; (ii) 1 Light (Main), 2 Lights (Main + Sub), 3 Lights (Main+ Sub + Background) conditions; (iii) Black, White and Texture background conditions; (iv) Warm light (3200K), Daylight (5600K), Shade light (9800K) lights color conditions; (v) 0, 1 and 2 Number of elements conditions; (vi) Fries, Rice and Tofu type of element conditions; (vii) Front Left (FL), Back Left (BL), Front Right (FR), Back Right (BR) position of the elements conditions

A total of 22 Cheeseburger photographs were created using a DSLR (Digital Single Lens Reflex) Nikon camera, model D810 with full-frame capabilities. The lens used was a 60 mm F2.8 Nikkor Macro Lens. Each image had a 1280 × 720 dimension (16:9 ratio) with a resolution of 300 dpi and 8-bit depth (see Figure 3).

4.2.4 Experimental design, procedure, and scales

The survey consisted of 22 questions where participants were asked to rate their impression of deliciousness on a 7-point scale (0 to 6). Although the different factor's conditions were represented in 22 images, 4 of them contemplated the same factors' conditions as the template (0-degree angle, 2 Light Sources, Black Background, and 5600K Daylight conditions). A single image was used to avoid repeated evaluations, and the answers were replicated in their correspondent conditions.

The experiment procedure required initial contact from the participants. Once the participant agreed to participate, a survey link was privately sent. To comply with the University of Tsukuba ethics committee, participants were asked their consent at the beginning and the end of the survey. Moreover, to keep the surveys anonymous, no personal data such as names, email addresses, phone numbers were requested at any point during the survey.

However, the IP address of the participant was recorded to avoid multiple responses from the same participant. Once the experiment period was over, this information was discarded.

4.2.5 Considerations

All screenings conducted throughout this study were performed by participants with similar age and cultural backgrounds (the Americas) since differences in eating habits vary across cultures, affecting their food preferences and the associations between the side dishes and the food. In addition, although the experiments were going to be conducted in a controlled environment at the university's campus. Due to restrictions imposed by the university during the COVID-19 pandemic, online resources were used on both experiments. Moreover, limitations in the environment where the images were created limited the usage of black and white texture backgrounds.

4.3 Participants

Participants were 26 English speaking undergraduate and graduate students (13 females and 13 males, aged 21-35 years, $M = 28.82$, $SD = 4.42$) recruited from the University of Tsukuba. All the participants were from countries located in the same geographical region (the Americas), and reported having similar experience and likeliness of the food. Additionally, all participants had a self-reported normal sight (no color blindness).

4.4 Analysis & Results

One-way analysis of variance (ANOVA) was conducted for each factor (angle, background, lighting, color, Number of Elements, Position of the Elements, and Type of Element). A summary of the ANOVA for each factor condition is presented in Table 2, and those factors with significant effects are presented in Figure 4. The results suggest a main effect of Color $F(2, 75) = 31.618$, $p = 0.000$, over the impression of Deliciousness. The post hoc comparisons using Tukey HSD test, concluded that the mean of the *warm* light color condition was significantly different than the *daylight* and *shade* conditions. Also, the *daylight* and *shade* conditions were also significantly different. Moreover, the results also suggested a main effect of the Number of Elements $F(2, 75) = 14.235$, $p = 0.000$, over the impression of Deliciousness. The post hoc comparisons using Tukey HSD test, concluded that the means of the *2-element* condition was significantly different than the *0* and *1-Element* condition, and the *0* and *1-Element* conditions were also significantly different. Finally, the analysis found a main effect of Type of Element $F(2, 75) = 14.318$, $p = 0.000$, over the

Table 2: One-way ANOVA results for each factor

Factor	Anova F	p-value
Camera Angle	$F(2,75) = 0.068$	0.935
Background	$F(2,75) = 2.678$	0.075
Lighting	$F(2,75) = 0.901$	0.410
Light Color	$F(2,75) = 31.618$	0.000*
Number of Elements	$F(2,75) = 14.235$	0.000*
Type of Element	$F(2,75) = 14.318$	0.000*
Position of Element	$F(2,100) = 0.662$	0.662

*Significance at 95% confidence

Figure 4: Factors with significant effect

Mean ratings with standard deviations are exhibited. The horizontal lines indicate the conditions comparisons where a significant difference was found * $p < 0.05$.

impression of Deliciousness. The post hoc comparisons Tukey HSD test, concluded that the means of the *fries* condition is significantly different than the *rice* and *tofu* conditions.

4.5 Discussion

In this Experiment, hypothesis 1 was examined focusing on light color. Based on the deliciousness ratings, it was found that the manipulation of the light color, modulated participants impression of deliciousness. Participants found more delicious the “yellow-like” aspect of the food, when presented with warm light rather than daylight and shade light colors, even though daylight is the most found light color in everyday life. Moreover, the results also corresponded to the hypothesis assumption, where the light color modulates the impression of deliciousness in a similar pattern as the light color motivates consumption [15, 16]. Hence, hypothesis 1 was accepted.

On the other hand, hypothesis 2 was examined focusing on the number, type and position of the decorative elements. Based on the deliciousness ratings, it was found that the manipulation of the amount and type of elements, modulated the impression of deliciousness whereas the position did not have any significant effect. Regarding the number of elements, participants impression of deliciousness was higher when the food was surrounded by 2 clusters of decorative elements rather than 1 cluster or none. It should

be noted that in case, the lack visual clutter in the image may have the reason behind the evaluations since adding more elements, increases the clutter. Moreover, food photographers often use decorative elements not only to fill the negative spaces in the image but also to provide extra information regarding how the food can be enjoyed or what sort of side dishes should be consumed with.

Lastly, regarding the type of decorative elements. Participant’s impression of deliciousness was significantly higher when the *fries* were used to decorate the cheese-burgers rather than *rice* or *tofu*. In this case, since the participants shared similar cultural backgrounds, side dishes like *rice* and *tofu* are not commonly consumed with this food, therefore it is possible that participants with different cultural backgrounds may yield a different response. Studies on this matter have found that the cultural background not only affects consumption [22], but also aroma, and taste perception [23]. This could explain the reason behind the variability and non-significance regarding the rice and tofu evaluations compared to the fries.

Regarding hypothesis 2, the experiment results found that although the manipulation of the amount and type of decorative elements modulate the impression of deliciousness, the position of the decorative elements did not yield any significant effect, therefore hypothesis 2 was partially accepted.

5. Experiment II

5.1 Objective

The objective of Experiment II was to investigate whether the interactions between the significant factors shown in Experiment I affects the impression of deliciousness.

5.2 Method

5.2.1 Factors conditions

At first, it was considered to use the same factors conditions as the first experiment. *Warm*, *Daylight*, and *Shade* conditions for the light color; 0, 1 and 2-Elements conditions for the Number of Elements; and *Fries*, *Rice*, and *Tofu* conditions for the Type of elements. Nevertheless, testing the interactions of the factors implied using all the possible conditions combinations. However, the 0-Element condition cannot be combined with any type of element condition, making null conditions. Therefore, the 0-Element condition was discarded from the experiment. As a result, the number of elements was composed by 1-Element condition and 2-Elements condition.

5.2.2 Visual Stimuli

The stimuli consisted of the different combinations that can be obtained from the manipulation of the Light Color, Number of Elements, and Type of Elements conditions. According to all possible (Light Color $\times$ Number of Element $\times$ Type of Element) conditions, a total of 18 images ($3 \times 3 \times 2$) were created (see Figure 5). Factors like the Camera Angle, Background, Lighting, and Position of Elements were kept constant throughout all images. Furthermore, the images were created using the same equipment as the previous experiment.

5.2.3 Experimental design, procedure, and scales.

Although the experimental procedure was the same as the previous experiment, changes to the survey were made to accommodate the number of questions. The survey consisted of 18 questions where the participants rated on a 7-point scale (0 to 6) their impression of deliciousness. Additionally, a 7-point scale (0 to 6) question to assess the level of experience and likeliness was added to the survey.

5.2.4 Participants

Participants were 28 English-speaking graduate students (15 females and 13 males, aged 29-35 years, $M=32.35$, $SD=1.93$) recruited from the University of Tsukuba. All participants were from countries located in the same geographical region (the Americas) and reported having similar experience ($M=5.02$, $SD=0.82$) and likeliness ($M=4.29$, $SD=0.57$) of the food. Additionally, all participants had a self-reported regular sight (no color blindness).

Figure 5: Visual Stimuli

- (i) Warm light, 1-Element; (ii) Warm light, 2-Elements;
(iii) Daylight, 1-Element; (iv) Daylight, 2-Elements;
(v) Shade light, 1-Element; (vi) Shade light 2-Elements

5.2.5 Analysis & Results

A three-way repeated measured analysis of variance (ANOVA) was conducted to evaluate the interactions of the Light color, Number of Element and Position of element on the impression of deliciousness. A summary of the ANOVA for each factor and factor's interactions are presented in Table 3, and those factors and interactions with significant effects are presented in Figure 6. The results indicated one-way effect on the Light Color Wilks' Lambda = 0.243, $F(2, 26) = 40.438$, $p = 0.000$, $\eta^2 = 0.757$; Number of Elements Wilks' Lambda = 0.834, $F(1, 27) = 5.388$, $p = 0.028$, $\eta^2 = 0.166$; and Type of Elements Wilks' Lambda = 4.714, $F(2, 26) = 61.285$, $p = 0.000$, $\eta^2 = 0.825$. Moreover, the results indicated two-way interactions between the Light Color and the Type of Element Wilks' Lambda = 0.342, $F(4, 24) = 11.558$, $p = 0.000$, $\eta^2 = 0.658$; and between the Number of Elements and Type of Element Wilks' Lambda = 0.445, $F(2, 26) = 16.194$, $p = 0.000$, $\eta^2 = 0.555$. However, the three-way interaction Wilks' Lambda = 0.827, $F(4, 24) = 1.258$, $p = 0.314$, $\eta^2 = 0.173$ was not significant to the impression of deliciousness. Tukey HSD pairwise comparison test, on the light color and Type of element, concluded that for the *warm*, *daylight* and *shade* light color conditions, the mean of the *fries* was

Table 3: Repeated Measures ANOVA results for each factor and the 2-way and 3-way interactions

Factor	Repeated Measures	p-value
Light Color	$F(2,26) = 40.438$	0.000*
No. Elements	$F(1,27) = 5.388$	0.028*
Type of Element	$F(2,26) = 61.285$	0.000*
Light Color $\times$ No. Elements	$F(2,26) = 0.327$	0.724
Light Color $\times$ Type of Element	$F(4,24) = 11.558$	0.000*
No. Elements $\times$ Type of Element	$F(2,26) = 16.194$	0.000*
Light Color $\times$ No. Elements $\times$ Type of Element	$F(4,24) = 1.258$	0.314

* Significance at 95% confidence

Figure 6: Factor's interactions

(i) One-way (ii) Two-way. Mean ratings with 95% CI. The horizontal lines indicate the conditions comparisons where a significant difference was found * $p < 0.05$.

significantly different from the *rice* and *tofu* condition. Moreover, only on the daylight condition, the test concluded that the *rice* and *tofu* conditions were significantly different.

On the other hand, the Tukey HSD pairwise comparison of the number of elements and light color, concluded that on the *1-element* condition, *fries* were significantly different from *rice* and *tofu*. In contrast, on the *2-elements* condition, *fries* were significantly different from *rice* and *tofu*, and *rice* was significantly different from *tofu*.

5.2.6 Discussion

In this Experiment, hypothesis 3 was examined focusing on the interactions of the light color, number and type of elements. Based on the deliciousness ratings, the results showed that although there were no significant interactions between all the examined factors, there were interactions between the light color and type of element, and between the number of elements and type of elements.

Regarding the light color and type of element interaction, participant's impression of deliciousness was significantly

higher on the *warm* light color and *fries* condition. In this case, the results showed that the comparison between the different types of elements under different light colors; *warm* light color was always perceived more delicious. Although *rice* and *tofu* original color is white, the yellow-like aspect might of the food as an overall might affected the evaluations increasing the impression of deliciousness, especially when compared to the *shade* light condition. In contrast, the comparison of light color between *fries*, *rice*, *tofu* condition showed that *fries* condition was always perceived more deliciousness regardless of the light color conditions. This finding not only supports the results of experiment I but also showed the importance of the association between the decorative elements to the food to modulate the impression of deliciousness throughout different light colors.

Regarding the number and type of elements interaction, the results showed that participant's impression of deliciousness was significantly higher when the image was composed by 2-element and *fries* condition. In this case, since *fries* were associated with the food, participants impression of deliciousness may have been influenced not by the association but by the amount, while in the case of the *rice* and *tofu*, the effect of the number of elements was random. This suggests that when participants evaluated the image with the *fries* condition, the clutter generated by the "extra" *fries* may have affected their impression of deliciousness. Moreover, since all participants had similar experience with the food, this finding also suggests that the evaluations were affected more by their understanding of the decorative elements rather than the food itself.

Lastly, regarding hypothesis 3, this experiment found an interaction between the light color and the decorative elements. However, this hypothesis referred to all three dimensions for the manipulation of the decorative elements. Thus, during experiment I and II only one dimension was found to interact with the light color. For this reason, hypothesis 3 was also partly accepted.

6. GENERAL DISCUSSION

The current study demonstrates the effect of the individual manipulation of the Light Color, Number of Elements, Type of Element, and the interactions between these factors have on the impression of deliciousness.

Throughout both experiments, this study found that even when the decorative elements were not associated with the food, the impression of deliciousness increased when the light color corresponded to warm light or yellow light and decreased when the light color was shade or blue light. This

finding suggests that the visual impression of deliciousness could significantly contribute to food consumption [15, 16] and food acceptance modulation [24] since the results showed a similar pattern among the studies.

Moreover, it was observed that manipulating the number of decorative elements also modulated the impression of deliciousness, specifically when the decorative element was associated with the food (*fries*). In this sense, although the finding suggests that more decorative elements would increase the impression of deliciousness, it also caused questioning regarding How many decorative elements are too many? Are there any thresholds regarding the number of elements? On this matter, visual clutter had been used as an approach to food consumption research [25], suggesting that chaotic or stressful food environments induced the consumption of foods with higher fat levels. With this in mind, this approach may be helpful for experimenting with these questions since the decorative elements could be referred to as clutter on food images.

Lastly, it was also observed that the impression of deliciousness shares similarities not only with topics related to taste perception and consumption but also with topics related to purchase behavior. For instance, a study using chocolates reported that participants with knowledge and experience in chocolates had a greater intention to purchase chocolates when presented, surrounded by numerous appealing decorative elements [21]. Considering that the participants expressed knowing the food category in this study, it can explain why the impression of deliciousness increased when the decorative elements were *fries*. The association between the *fries* and *cheeseburger* was perceived more appealing than the *tofu* and *rice*. Moreover, it can also explain why the impression of deliciousness was significantly higher when there were two clusters of *fries* instead of one. Thus, bringing up two possible theories regarding the impression of deliciousness and purchase behavior. 1) the visual impression of deliciousness may be correlated to the willingness to purchase and potentially to the actual consumption. 2) the visual impression of deliciousness and the purchase behavior may be linked by a causality effect. Nevertheless, to assess the validity of these theories, further experimentation with an emphasis on the willingness to purchase is required.

7. CONCLUSIONS & RECOMMENDATIONS

To summarize, our findings support and extend the claim that the image composition affects the impression of deliciousness. By manipulating different factors, this study found that the manipulation of the light color,

number of elements and type of element can modulate the impression of deliciousness. Moreover, by testing the interactions, this study was able to discuss the importance of the associations between the decorative element, and the food.

Even though, part of this study aimed to study the effect of the number of decorative elements on the food, no data was taken regarding the participants likeliness of the decorative element. Therefore, it may be possible that this factor was also influenced by the likeliness of the side dish instead of the amount of side dish. With this in mind, it is recommended that future studies test the possible effect.

In contrast, this study also concluded that the impression of deliciousness could be modulated in a similar manner than purchase behavior and food consumption. Hence, future research should aim to investigate the possible correlation and/or causality between these subjects and the impression of deliciousness. This could be useful for the promotion of several foods' categories, including healthier foods through food photography.

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