

How Healthy the Food Products Should be Portrayed : Framing Effects on Inference, Actual Perceivedness, and Purchase Intention on Food Products

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Nowadays people's lifestyle has gone healthier, and along with this propensity lots of food products seem to appear healthier than before to meet their consumers' wants and needs. In this paper, three experiments were conducted to find out if this propensity is true and furtherly to discover the effective way of using healthy framings(functionally healthy framing vs. hedonically healthy framing) on foods(healthy categorized food vs. unhealthy categorized food). The results revealed that people infer and perceived positively with the one that is framed functionally healthy vs. hedonically healthy for healthy categorized food. On the other hand, unhealthy categorized food were more preferable when it was portrayed to be hedonically healthy. These results of inference and actual perceivedness were also found to be positively influence on consumers' choice and purchase intention on each foods as well.

Key words: healthy framings, inference, actual perceivedness, choice, purchase intention

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I. Introduction

Many studies have been done to see the people's behavior towards unhealthy and healthy foods (Raghunathan, Naylor, and Hoyer 2006; Wansink 2004a and 2004b; Wansink and Chandon 2006). In most studies, people turn out to be choosing what seems to be healthier because typically people's intuition leads bad things to be more enjoyable, hence tend to automatically think unhealthy foods are tastier and more enjoyable (Raghunathan, Naylor, and Hoyer 2006).

Despite above research, there are also other side of research that consumers' eating habits have changed and prefer healthier foods (Oakes 2005; Verbeke 2006; Wansink and Huckabee 2005). For instance, USDA (United States Department of Agriculture) research reported that the Americans' diet quality are becoming healthier. Also according to consumer behavior research center in KOBACO (Korea Broadcast Advertising Corporation 2013), health is what Korean consumers concern the most since 2001 and this aspect showed significantly in 30s. Moreover, UK Government also reported that British consumers have been showing behavior of preference in buying healthy food (UK Department of Environment). Hence, it clearly seems that most of people from different countries are getting more conscious about their health than before, therefore would be more interested in healthy consuming than before.

This propensity can be seen in real market as well. In the grocery stores or in restaurants, you may see quite a lot of products or menus emphasizing nutrients and healthfulness of their items compared to that of past years. This phenomenon is showing both in healthy and unhealthy categorized foods. Here are some examples in unhealthy food or what people so-called junk food that are claimed healthy that actually have been successful; Hershey's extra dark chocolate bar with 60% of cocoa, Jiffy's peanut butter jam with enriched omega-3, Spam's low-sodium hams, and Lay's low-fat potato chips. Now here are some of examples in healthy or wholesome food that are claimed healthy that actually have been successful; SmoothieKing's extra-vitamin fruit smoothies, Del Monte's no sugar added fruit cups, organic vegetables, and low-fat milk. This propensity is also supported in restaurants as well. Today's restaurant customers tend to select healthier menu items(), control portion size, and visit restaurants that offer healthy choices(and). According to some researchers, sales of nutritionally improved foods in grocery stores grew faster than sales of their regular food products for past decade (Nayga 1999; Frazao and Allshouse 1995). And also this aspect applied to grocery stores' layout in a way that healthy foods are positioned more convenient spots for consumers to reach (Sigurdsson, Saevarsson, and Foxall 2009; Wansink 2006; Cohen and Babey 2012; Glanz, Bader, and Iyer 2012).

With these prior research background of people's changed lifestyle and eating traits, our research questions came upon according to these aspects. What would be the effective way to frame healthy in order to catch people's attention better? With having this big research question, We have conducted and performed experiments throughout this paper to get answers.

II. Theoretical Background

1. Framing Effect

The originality of frame effect is the prospect theory. Prospect theory has explored by Kahneman and Tversky (1979) and it is a theory that was expanded from the standard economics theory of rationality. In the economics perspective, people make rational decisions therefore select the one that is only certain. On the other hand, the prospect theory explains the notion of people showing different behavioral reactions as they exposed to either loss or gain. In order words, due to risk averse mindset that most people possess, people are likely to evaluate fastidious with losses than with gains (Simon 1966; Tversky and Kahneman 1979). With this notion embedded, the framing effect is generally defined from previous research as the effect that control people focus either to the potential gain or to the potential loss when they are confronted with two alternatives that are actually containing same contexts but in reverse directions (Kahneman and Tversky 1979; Tversky and Kahneman 1981; Tversky and Kahneman 1986; Levin, Schneider, and Gaeth 1998).

Well-known study relates to framing effect has done by Levin and Gaeth (1988). They found out that people seem to be more interested in purchasing meats that are labeled with 75% leaned, instead of with 25% fat. This result underlies the prospect theory that people's likeliness to get impacted to negative factor, or loss, which here is fats. Therefore people tend to avoid purchasing the one with negative framed meats. Usually people tend to use their feelings or heuristics to judge given information about the product.

2. Types of Framing

Belei et al. (2012) have demonstrated in their research that important factor about framings is that "How" it is framed. In their studies, they have divided how food products can be described into two; functionally and hedonically. Functional attribute focused framing in food products is the framing that contains meanings such as anti oxidants and cholesterol, while hedonic attribute focused framing contains meanings such as fats and calories.

In Belei et al. (2012)'s studies, they have performed their experiments

to see the effect of two different types of framings on consumption of such framed food(e.g.,nuts). With this research, we will apply this theories to my paper and divide types of healthy food's framings into functionally healthy and hedonically healthy.

3. Framing Effects on Decision Markings

According to prior research, consumers tend to generate inferences on missing attributes of products by using their intuition or heuristics to evaluate such product (Broniarczyk and Alba 1994; Raghunathan, Naylor, and Hoyer 2006). This phenomenon, specifically in food item, was expanded by Raghunathan, Naylor, and Hoyer (2006) by testing people's behavior when exposed to both healthy and unhealthy described foods. Their experiments demonstrated that when people were to assume the taste of food(e.g., crackers, and mango smoothies) by only given with fat information, people tend to infer the one with more fats to be tastier. Also, when they were to actually consume such food item, they chose the one that described to have more fats and felt more satisfied with such one. With these research to be supportive to my research, to figure out the people's behavior on decision making on food, we will also examine people's inference and actual perceived feelings. Therefore, research hypotheses are developed as follows:

H 1a: When healthy food products are framed "functionally healthy," consumers will infer such products more positively.

H 1b: When unhealthy food products are framed "hedonically healthy," consumers will infer such products more positively.

H 2a: When healthy food products are "functionally healthy framed," consumers will perceive such products more positively.

H 2b: When unhealthy food products are "functionally healthy framed," consumers will perceive such products more positively.

In marketing domain, many researchers measure the purchase intention to find out people's final behavior in decision making process. Purchase intention refers to consumer's anticipated or scheduled behavior in goods and services in the future. In order words, a possibility of how people affect their belief or attitude to real action or behavior (Engel, Blackwell, and Miniard 1990). Therefore, if the purchase intention is measured, then researchers could find if participants' cognitive feelings toward goods or services and their actual action(e.g., purchasing) have a correlating relationship. Consumer's highly positive feelings about goods or services before actual purchase action lead them to show higher possibility of actual purchasing action(Fornell 1992).

Other studies demonstrated that satisfaction and purchase intention have highly correlated to each other. Therefore, by examining purchase

intention, researchers can acknowledge which final action they would take(Oliver 1980; Oliver and Linda 1981; Oliver and Bearden 1983). Thus, our research hypothesis has come up as follows;

H 3: Consumers will have more intention to purchase when healthy food products are framed functionally healthy, and when unhealthy food products are framed hedonically healthy.

III. Methodologies and Studies

All studies were conducted at once by same participants to test how people infer and actually perceive when confronted with either healthy or unhealthy food item that is framed healthy either functionally or hedonically. A total of 86 participants (40 males and 46 females) have participated in the healthy food item (e.g.,salad) experiment ,and a total o f90 participants (43 males and 47 females) have participated in the unhealthy food item (e.g., doughnut) experiment.

1. Study 1: Effects of Framing on Inference

The purpose of experiment 1 is to find out whether differing in healthy framing(functionally healthy framing vs. hedonically healthy framing) could cause the way people infer on taste and satisfaction on each types of foods(healthy food vs. unhealthy food). In order to test this, firstly, we divided the experiment into two separate experiments in order to see the influence of difference in healthy framings on people's behavior from both healthy and unhealthy food items. First experiment is to see people's inference on healthy food(e.g.,salad) when it is either framed functionally or hedonically healthy. Second experiment is to see people's inference on unhealthy food(e.g., doughnut), when it is either framed functionally or hedonically healthy. From hypothesis 1a, it is expected that people will infer healthy food more positively when framed functionally healthy vs. hedonically healthy, compared to the unhealthy food. From hypothesis 1b, it is expected that people will infer unhealthy food more positively when framed hedonically healthy vs. functionally healthy, compared to the healthy food. In order to test these hypothesis, we have conducted experiments as below.

1) Experimental Design

For both salad(healthy food) and doughnut(unhealthy food) experiments, people were given with one of two framed descriptions(functionally healthy framed vs. hedonically healthy framed) which are as follows;

<Table 1> Experimental Design

	Healthy Food (Salad) Experiment	Unhealthy Food (Doughnut) Experiment
Functionally Healthy Framed	Salad that is nutritiously well-balanced	Doughnut that contains ingredients with less cholesterol
Hedonically Healthy Framed	Salad that makes you feel light-weighted	Doughnut that helps you to release stresses and to recover fatigues

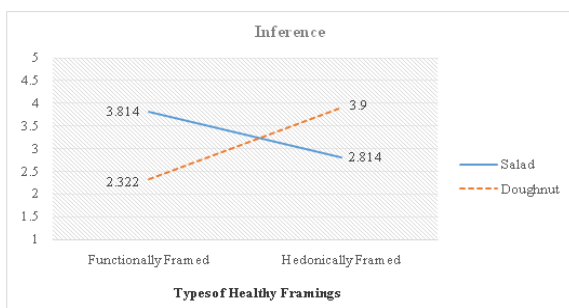
After they are well-acquainted with the given descriptions, they were to answer two questions in a 5-point-scale as follows;

- 1) How tasty do you think the food from the description would be?
- 2) How much do you think you would satisfy eating the food from the description?

2) Results

Manipulation Check. To assess whether participants have actually perceived the given framings as we intended, we implemented manipulation check. The result revealed that the given framings have manipulated as we intended.

Influence of Types of Framings on Inference It is found that the questions used to measure the inference of tastiness and satisfaction were found to be highly correlated to each other(Cronbach's $\alpha = 0.91$), therefore, we averaged the measure of taste inference and satisfaction inference to get one inference item. Having this inference item as the dependent variable, we conducted a between-subjects design of 2x2 analysis of variance (ANOVA) with having two types of foods (healthy food vs. unhealthy food) and two types of framings (functionally healthy framing vs. hedonically healthy framing) as the independent variables. With this design, interaction effects of types of framings on types of food was tested ($F(1,17)=87.02, p < .00$). Moreover, the participants inferred salad(healthy food) more positively when the salad was framed functionally healthy vs. hedonically healthy. Participants inferred doughnut(unhealthy food) more positively when the doughnut was framed hedonically healthy vs. functionally healthy. These results are clearly showing the interaction effects of the inference on salad and doughnut when differing in healthy framings.



[Figure 1] Inference and Types of Frame

From this experiment, both hypothesis 1a and hypothesis 1b were

accepted. As predicted in hypothesis 1a, healthy categorized food with “functionally healthy framing” vs. hedonically healthy framing was inferred to be more positively to people; thus, hypothesis 1a was accepted. Also, as expected in hypothesis 1b, unhealthy categorized food with “hedonically healthy framing” vs. functionally healthy framing was inferred to be more positively to people; thus, hypothesis 1b was accepted.

3) Discussion

By looking at the results of experiment 1, each type of framings were turned out to be highly influenced to the each healthy food and unhealthy food. These results imply that when promoting food that is categorized to be generally healthy, functionally healthy framing would be more effective to catch consumer’s attention, while promoting food that is categorized to be generally unhealthy would be more effective when using hedonically healthy framing.

2. Study 2: Effects of Framing on Actual Perceivedness

Experiment 2 is a continual experiment to experiment 1. The purpose of this experiment 2 is to find out whether differing in healthy framings could cause the way people actually perceive on taste and satisfaction of each types of food. In order to test this, like previous experiment, we divided the experiment into two separate experiments; one experiment for healthy type food used and the other experiment for unhealthy type food. First experiment is to see how people actually perceive on salad with an exposure of either functionally or hedonically healthy framing. Second experiment is to see how people actually perceive on doughnut with an exposure of either functionally or hedonically healthy framing. From hypothesis 2a, it is expected that people will perceive healthy food more positively when framed functionally healthy vs. hedonically healthy, compared to the unhealthy food. From hypothesis 2b, it is expected that people will perceive unhealthy food more positively when framed hedonically healthy vs. functionally healthy, compared to the healthy food.

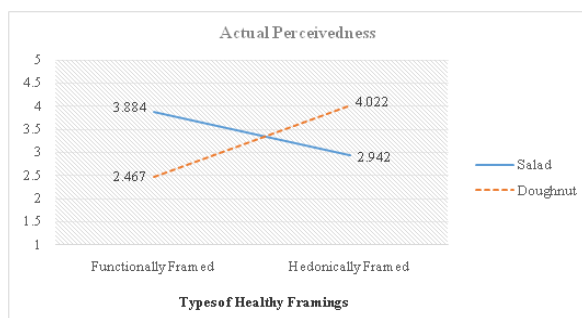
1) Experimental Design

In both salad and doughnut experiments, participants were to keep acquainted with the given descriptions. Then participants were given with the actual corresponding food so that the participants could actually evaluate how they perceive on taste and satisfaction of such food. After they ingested food, they were to answer two questions in a 5-point-scale as follows;

- 1) Please evaluate the actual perceived tastiness of the food you just had.
- 2) Please evaluate the actual perceived satisfaction of the food you just had.

2) Results

Influence of Types of Framings on Actual Perceivedness It is found that the questions used to measure the actual perceived taste and satisfaction were found to be highly correlated to each other (Cronbach's $\alpha = .93$), therefore, those two measures were averaged up to get one construct item of actual perceivedness. Using this construct item as the dependent variable, we conducted a between-subjects design of 2x2 analysis of variance (ANOVA) with having two types of foods (healthy food vs. unhealthy food) and two types of framings (functionally healthy framing vs. hedonically healthy framing) as the independent variables. With this design, an interaction effect of types of framings on types of food was tested ($F(1,172) = 73.39, p < .00$). Moreover, it can be seen that the participants were actually perceived the taste and satisfaction of salad more positively when the salad was framed functionally healthy vs. hedonically healthy. Participants actually perceived doughnut to be more tasty and felt satisfied when the doughnut was framed hedonically healthy vs. functionally healthy. This results clearly show the interaction effects of the actual perceivedness of salad and doughnut on types of health framings. Figure 2 shows the interaction effects more vividly.



[Figure 2] Actual Perceivedness

From this experiment, both hypothesis 2a and hypothesis 2b were accepted. As predicted in hypothesis 2a, consumers perceived more positively when healthy food was framed "functionally healthy" vs. hedonically healthy. Also, as expected in hypothesis 2b, consumers perceived more positively when unhealthy food is framed "hedonically healthy" vs. functionally healthy.

3) Discussion

The main purpose of experiment 2 was to reveal that there is almost no gap between the measure of how participants inferred (experiment 1) and how they actual perceived (experiment 2). By looking at the results of experiment 1 and 2, the outcomes seem very similar to each other, thus the gap hardly exists. Furtherly, experiment 2 supports the phenomenon of healthy food products would be more effective when framed functionally healthy, while unhealthy food products would be

more effective when framed hedonically healthy, once more.

3. Study 3: Effects of Framing on Purchase Intention

From experiment 1 and experiment 2, inference and actual perceivedness on each type of foods with each type of framings were examined respectively, which would be the cognitive steps in decision making process. In experiment 3, final step of decision making, which would be the actual behavior, will be examined to see if participants' cognitions and actual action matches and correlates to each other.

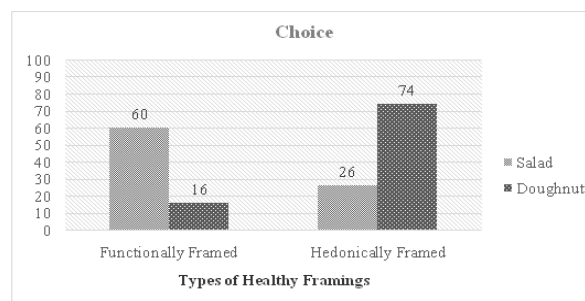
1) Experimental Design

Participants were to assume that they are about to go out to get something to eat and decided to get either salad or doughnut, depends on which type of food experiment they are participating in (e.g., if the participants were in healthy food conditioned experiment, they were to choose salad, while participants in unhealthy food conditioned experiment, they were to choose doughnut). And they were to think that they are standing in front of two choices. One choice of food that is functionally healthy framed and the other choice food that is hedonically healthy framed. After recognizing both sides of descriptions, they were to answer two questions in a 5-point-scale as follows;

- 1) You are given with two choices. Which one would you choose?
- 2) How high is your purchase intention to the product that you chose above would be?

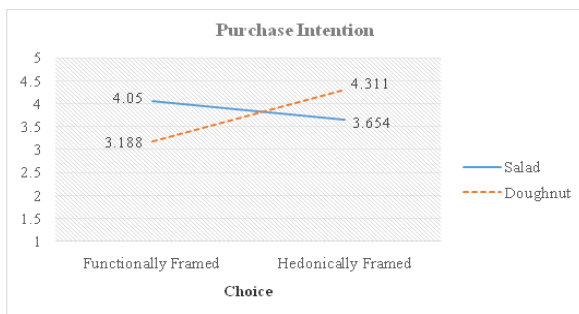
2) Results

Influence of Types of Framings on Choice Before looking at the results of purchase intention, I wanted to see which types of foods with which types of framings were more selected from people. In order to find out, I performed chi-squared test. The results demonstrated that people chose more one that is functionally healthy framed when choosing salad, while chose more one that is hedonically healthy framed when choosing doughnut, and the result can be seen more easily from the [Figure 3].



[Figure 3] Customer Choice and Framing

Influence of Types of Framings on Purchase Intention With the results of people’s tendency of choosing functionally healthy famed salad and hedonically healthy framed doughnut, it can be predicted that people will have high purchase intention when salad is framed functionally healthy framed vs. hedonically healthy framed, and when doughnut is framed hedonically healthy framed vs. functionally healthy framed as well, which is what we are trying to test in hypothesis 3. Therefore to test hypothesis 3, we set the purchase intention to be a dependent variable and conducted a between-subjects design of 2x2 analysis of variance (ANOVA) with having two types of foods (healthy food vs. unhealthy food) and two types of framings (functionally healthy framing vs. hedonically healthy framing) as the independent variables. According to the results, interaction effects on purchase intention were shown between types of foods and types of health framings ($F(1,172)=28.83, p < .00$). Furtherly, the results revealed that the participants showed higher purchase intention to functionally healthy framed one vs. hedonically healthy framed one when they were to purchase salad. On the other hand, people showed higher purchase intention to hedonically healthy framed one vs. functionally healthy framed onewhen they were to purchase doughnut. Figure 4 shows clearly that there is interaction effects in purchase intention by the factors of types of foods and types of health framings.



[Figure 4] Purchase Intention and Framing

3) Discussion

The results of experiment 3 showed that types of framings according to types of foods highly influence to both choice and purchase intention. These results imply that not only people imply and feel positive with functionally healthy framings in healthy categorized food, but also people actually want to purchase products with such framings in real situation. Same logic applies to the unhealthy categorized food.

IV. Discussions and Conclusion

Understanding the effects of framings on people’s behavior has been important topic of inquiry specifically in food industries(Oakes 2005; Oakes and Slotterback 2005; Wansink and Huckabee 2005). While some research revealed that people innately prefer unhealthy food(Carpenter and Nakamoto 1989; Raghunathan, Naylor and Hoyer 2006; Oakes 2005), other research advocate that people prefer healthy framed food products(Drewnowski 1997; Smith 2004). With these contradictory previous research, we were interested to find out how differently people react when they are confronted with different types of framings of each types of foods. Throughout the paper, we have conducted three experiments to see the consequences the effects of framings on people’s decision making when they are confronted with two types of healthy framings of two types of foods.

Experiment 1 was implemented to find out how people infer the taste and infer the feeling of satisfaction about given healthy framing(either functionally or hedonically) of food(either healthy or unhealthy food item). The results have clearly proven that people tend to assume food item more positively when healthy food item is framed functionally healthy rather than hedonically healthy, and when unhealthy food item is framed hedonically healthy rather than functionally healthy.

Experiment 2 is an extension of experiment 1 to see if there is any gap occurred between the measures of what people infer and how they actually perceived. The difference of experiment 2 from experiment 1 was that in experiment 2, participants were able to actually eat the sample that corresponds to their given descriptions. The results of experiment 2 showed that participants evaluated their actual perceived taste and satisfaction more positively when healthy food was framed functionally healthy, and when unhealthy food was framed hedonically healthy. This outcome was very similar to that of experiment 1, which means almost no gap between the measures of inference and actual perceivedness on food.

Lastly, experiment 3 was conducted to find out if people’s actual action correlates with their inference and actual perceivedness on food item. The result showed that people were likely to choose the one that is framed functionally healthy when the given food item was salad(healthy categorized food), and were likely to choose the one that is framed hedonically healthy wh en the given food item was doughnut(unhealthy categorized food). Furtherly, we measured purchase intention to once more assure this result in more detail. The result demonstrated that people showed higher purchasing intention when healthy type of food(e.g, salad) was portrayed functionally healthy (e.g, nutritiously well-balanced), and when unhealthy type of food(e.g, doughnut) was portrayed hedonically healthy(e.g., fatigue recovery and stress releaser). This result affirms the phenomenon of people’s behavior of decision making on each types of healthy framings of each types of food items.

To sum up the results of these three experiments, it can be said that functionally healthy framings were more effectively influenced when the framings were used in healthy categorized food, while hedonically healthy framings were more effective to unhealthy categorized food. This result can be interpreted people tend to get food products with framings that matches with the main factors that such food should be contributing. Grant, Malaviya and Sternthal (2004), people tend to feel more connected and evaluate product more positively when such product attributes are similar to that of consumer's goals or objectives. Hence, people will be likely to look for functionally (vs. hedonically) healthy components related descriptions rather than hedonically(vs. functionally) healthy components related descriptions on healthy(vs. unhealthy) food products, because such framings will allow them to feel more close to their goal of consumption of such food.

1. Implications

This research contributes to food industries largely by providing better understandings of in what way they should be portraying their food products healthy. This paper holds more in-depth answers to prior research done by Wansink and Chandon (2006), Raghunathan, Naylor, and Hoyer (2006), and Belei et al. (2012) by analyzing healthy claims by types of foods and its effect on people's behavior specifically. The food manufacturers will be able to convey their food products effectively to their customers. This paper's findings will help consumers from mis evaluating of food products. For example, although the food product may actually contains what they really looked for but not emphasized inside descriptions, then consumers may show disinterest in such food product and could just pass by. If this mis judging information of product situation occurs, it will act as a big damage to the company because they are losing their customers. Hence, to avoid this kind of situation to there lating companies, they need to, first, understand their products well that could categorize their products (e.g., healthy or unhealthy line). Then they need to figure out appropriate framings correspond to each food category.

Also, this research findings can be applied to restaurants as well. For examples, the descriptions on their menus can be fixed according to this research results and such change could induce customers. Also when customers ordered their food with such instructed descriptions, they will feel more satisfied with their food which could make them to be "frequent customers." Moreover, restaurant managers should train their employees to explain their healthy categorized food menus in functionally healthy focused way, while train to explain unhealthy categorized food menus to be hedonically healthy.

This studies also give implications to consumers to shop smart. When

they are going to grocery stores to purchase foods, they must be aware of this results so that they will not regret of their purchase later on. When you go to the grocery stores, unless you get a chance to try samples, you would not know what each product will actually provide to you. Therefore you need to predict and infer about such products by just looking at the descriptions from items. Since this would be the most case when grocery shopping, consumers should be aware of themselves when trying to get one of healthy food products(or unhealthy food choices), they need to look for the one that is framed functionally healthy(or hedonically healthy), so that people would not feel a gap between what they have expected and what they have actually perceived after purchasing. The larger the gap becomes, the more negative thoughts towards such food products or even with such brand, which would be a big loss for that food companies.

2. Limitations and Further Researches

Although throughout these experiments, effects of types of healthy framings on people's decision making on food was found, there are some limitations to be found as well. Firstly, in this research, only foods that are clearly either healthy or unhealthy were tested. But there are food which are categorized in both sides and such categorized foods were not tested in these experiments. A good example for this would be Quaker's granola bars. Quaker is producing many different kinds of granola bars and most of their bars are covered with chocolates or contain chocolate chips. In this case, although granola bars can be categorized as healthy food snack, what added to bars, chocolates, should be categorized unhealthy. This kind of food products producing companies might feel confused rather such products should be categorized in healthy or unhealthy or rather to frame functionally healthy or hedonically healthy. Therefore, this type of food products should also be examined as well in further research.

Moreover, additional experiment could be also conducted in further research to see the outcomes when functionally and hedonically healthy combined framings were used at once on each type of food products. According to prior research, framings that are weighted evenly in functional characteristics and hedonic characteristics will attract people even more(Chitturi, Raghunathan, and Mahajan 2007; Dhar and Wetenbroch 2000; Okada 2005). On the other hand Belei et al. (2012) revealed combining these two framings would not be easy. But, in the advertisements, there are quite a lot of food products that use both functionally and hedonically healthy descriptions. For example, Kellogg's is describing their cereals to be such as; "it's a tasty cereal that will energize your day (hedonically healthy framing) and at the sametime will help your body to be in good shape (functionally healthy framing).

"This phrase seems that it is possible for products to be portrayed both functionally and hedonically healthy. But it has not been tested professionally if this way of framing is effective.

Another idea for further research could be to conduct experiments with participants with various backgrounds. The main reason is because framings may be interpreted differently by people with different cultural backgrounds. According to Werle, Trendel, and Ardito (2013), the way people think of healthy foods or foods' descriptions is different by culture. In their research, they have done the exact same experiments as Raghunathan, Naylor and Hoyer (2006) but with different participants, French participants instead of Americans. Werle, Trendel, and Ardito (2013) discovered inverse results of Raghunathan, Naylor, and Hoyer (2006)'s. By looking at these two research, different outcomes may show if this research experiments were done in different countries.

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