How Descriptive Food Names Bias Sensory Perceptions in Restaurants*

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Abstract

Can a dietitian, restaurateur, marketer, or parent change the taste of a food simply by changing its name? In a six-week cafeteria experiment involving 140 customers, descriptive menu labels (such as “succulent Italian seafood filet”) increased post-consumption sensory ratings and calorie estimations compared to the regularly labeled menu items (e.g., “seafood filet”). Diners who ate descriptively labeled foods wer more likely to make more favorable comments about the meal and they also generated a greater number of general evaluations and attribute-specific comments. As long as the food is of reasonable quality, the use of descriptive labels may help improve perceptions of foods in institutional settings, and it may help facilitate the introduction of unfamiliar foods.

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To what extent do food names or labels suggestively influence our taste of a food? A consumer's expectation about the taste of a food can have a sizable impact on their sensory evaluation of it under selected situations (Cardello et al 1985). Even on a more macro level this has been suggested to influence food preferences of entire cultures (Wright et al 2001). This was vividly demonstrated in the early 1940s when studies commissioned by the Committee on Food Habits examined the feasibility of serving organ meats – such as brains, kidneys, tongue, and liver – as potential replacements for traditional cuts of meat which were in short supply during World War II (Wansink 2002). While the taste of these organ meats was generally acceptable when the type of meat was undisclosed, once disclosed, the meats became repulsive to many segments of consumers.

Research on labeling has focused on nutritional labels, health labels, and warning labels (Caswell and Mojduszka 1996; Miller et al 1998), with notably less directed toward those expectations developed by descriptions or by names on labels (Aaron, Evans and Mela 1995). Descriptive names might add a positive halo to a food, they might have little effect (Tuoila et al 1998), or they might "backfire" if they unfairly raise expectations that lead to disappointment. In any case, there is little "sparce literature on how advertising, packaging, and information generate sensory expectations" (Deliza and MacFie 1996), and less still on how these translate into post-consumpton sensory evaluations.

This research examines how descriptive labels influence post-consumption evaluations of a menu item in a cafeteria. After providing a brief overview of the mechanism underlying the effect of descriptive labels, exploratory hypotheses are formulated and tested in a six-week field study of six menu items involving 140 adults. Implications are then provided for dietitians and restaurateurs who control menu content and design in either institutional or in private settings.

How People Evaluate Descriptive Menu Labels

One's prior expectations of a food can have a notable impact on subsequent post-taste evaluations in appropriate situations (Cardello 2000). Yet as with perceptions of quality, these evaluations can be subtly influenced (Wandel and Bugge 1995; Mojduszka and Caswell 2000). Even information related to a food's fat content, for instance, has been shown to influence taste expectations of foods as well as their post-consumption evaluation of these foods (Kahkonen and Tuorila 1998).

When in restaurants, people scan menus looking for benefits they believe will satisfy their expectations at that point in time. Consider how people evaluate "Grandma's homemade chocolate pudding." If they associate Grandma's cooking as being flavorful, they may combine their beliefs about the characteristics of Grandma's cooking (flavorful) with the characteristics of chocolate pudding (sweet and smooth). These expectations they have about Grandma's cooking can establish an affect state (Mela 1999) that can bias the taste evaluation. Unless these expectations are grossly disconfirmed (Cardello and Sawyer 1992), lab studies show that their post-consumption evaluation seems to generally assimilated with prior expectations.

As long as the foods are not too different (worse) than what was expected, these favored associations should form an attitude halo. This resulting attitude halo should not only influence their post-consumption evaluation of the product (Kahkonen and Tuorila 1998), but it might also influence estimations of how caloric the product is and how satisfying it was to eat (cf. Shide and Rolls 1995). In short, we believe that favorably descriptive menu labels can increase sensory perceptions of appearance and taste just as they have been shown to sales and influence attitudes toward the restaurant (Wansink, Painter, and van Ittersum 2001).

H_1: When a food is favorable, the use of favorable descriptive names or labels will increase post-consumption sensory ratings

Part of the process by which this effect on sensory evaluation occurs is through the tendency of descriptive names or labels to encourage one to think about the food in a way that is more hedonic in nature and less utilitarian (Chandon et al 2000). By providing a more rich and hedonic stimulus (in the form of a descriptive food label), one's thoughts and evaluations of it are more likely to reflect thoughts in a similar direction.

If a person is cued to the hedonic nature of a product by a descriptive label, this should be evidenced by the valence of comments they might make about the food. If positively cued by a favorably descriptive label, a person might end up generating a greater number of positive comments about the food and a smaller number of negative comments than those who saw a regular label. This should be reflected in the number and

type of thoughts a person writes down when asked to comment on the food. We expect…

H_2: Compared to a person evaluating a food with a regular label, a person evaluating a food with a favorable descriptive name or label will generate a greater number of positive comments and smaller number of negative comments.

In analyzing one's cognitive processing, the thoughts one generates (which are partly manifested in the comments one makes) can be coded as being either heuristic-based or analytic-based. The basis of this processing is evidenced by the content of these thoughts (Sujan 1985). People who are heuristic-based tend to make general evaluative comments ("great" or "excellent") when asked to comment on a product. Those who are analytic-based tend to make more attribute-specific comments ("this tastes sweet" or "this is crunchy").

People cued to more hedonic descriptions of the product may tend to be more general and less analytical in their thinking about the product. If true, this would be evidenced by the types of comments they noted. That is, compared to those seeing a regular label, those seeing a descriptive label will generate a greater proportion of general evaluative comments ("great" or "excellent") compared to attribute-specific comments.

H_3: Compared to a person evaluating a food with a regular label, a person evaluating a food with a favorable descriptive name or label will generate a greater proportion of general evaluative comments compared to attribute-specific comments.

Methodology

To determine how people respond to descriptive labels, we conducted a six-week field experiment in a cafeteria at a major American university. After reviewing the past sales of products in the cafeteria, we selected six products that were popular enough to offer twice a week and which represented a wide variety of foods. Descriptive labels included a wide mix of geographic labels, nostalgia labels, and sensory labels that were presented on menu boards and next to the items in the cafeteria line. The names were selected based on pretests that indicated they were not misleading and were appropriately descriptive, appealing, and evocative. They included Traditional Cajun Red Beans with Rice (vs. Red Beans with Rice), Succulent Italian Seafood Filet (vs. Seafood Filet), Tender Grilled Chicken (vs. Grilled Chicken), Homestyle Chicken Parmesan (vs. Chicken Parmesan), Satin Chocolate Pudding (vs. Chocolate Pudding), Grandma's Zucchini Cookies (vs. Zucchini Cookies).

During the Tuesday and Friday lunch of each of the six test weeks, two of the items were presented with a regular or basic label (e.g., grilled chicken); two items were presented with a descriptive label; and two items were not offered. For the next two weeks, the items and the conditions were systematically rotated until all menu items were present in all conditions. In the fourth week, the rotation was repeated. The rotation was planned in order to minimize any unexpected variations that might affect either preferences or participation (such as blizzards, religious holidays, or game days). During a six-week period, each item was available six times.

Everyone who selected one of the six target menu items from the cafeteria line was asked to complete a one page questionnaire by the person at the cash register. Because new recipes are often tested in the cafeteria, it was not believed that these people would

feel singled out. The guidelines of the University's Human Subjects Committee were followed, and 98% of the subjects (140) completed and returned their questionnaires upon finishing their meal and leaving the cafeteria. Relevant to this study, diners were asked single item questions related to sensory perceptions on 9-point Likert scales with the end-points labeled "strongly disagree" – "strongly agree." The statements were, "This item was appealing to the eye," "This item tasted good," and "After finishing this menu item, I felt comfortably full and satisfied." Diners were also asked to estimate how many calories they thought the consumed menu item contained. On the back of the questionnaire, people were asked to comment on the food. A total of 537 individual thoughts were expressed (2.4 thoughts per person) and 481 (89.6%) focused on qualities of the food and were analyzed. (The remaining 56 comments dealt with issues not relevant to the study, such as the hours of the restaurant, service, or décor). Of those participating, 87% were faculty or staff, 9% were graduate students, and 5% were visitors from off-campus. Ages ranged from 23-74 with the average age being 43.2.

There were no critical differences between those who bought the descriptively labeled menu items and those who bought the regularly labeled menu items. Both groups were analyzed on demographic characteristics (including age, gender, education), on the basis of the menu items they selected, on the basis of how healthy they perceived themselves to be, and on the extent to which they were watching their weight. There were no significant differences between the two groups ($p<.20$ level). This gives us confidence that any differences we find would be due to the labeling conditions and not due to differences in sample characteristics.

To be able to examine the open-ended responses related to the food (89.6% or 2.3 per person), two coders (including one author) coded these responses as being positive in valence or as being negative in valence. They were in agreement on 86.1% of the responses and the remaining classifications were resolved through discussion. To examine H_3, this coding was also done with respect to their coding (see Sujan 1985) of general evaluative thoughts (such as "good" and "bad") and attribute-specific thoughts (such as "tastes sweet" or "overcooked"). The 78.3% agreement in categorization was also resolved through discussion.

Results

One-way analyses of variance were conducted. Gender and age being used as covariates in addition to indicator (dummy) variables for each of the different foods. In line with the general expectations for H_1, when compared to less descriptive labels and names (see Table 1), descriptive labels were viewed as more appealing (6.66 vs. 5.87, , $F_{1, 131} = 5.92$, $p<.05$), as tastier (7.31 vs. 6.83, $F_{1, 131} = 5.92$, $p<.05$), and as more caloric (366 vs. 302, , $F_{1, 131} = 5.92$, $p<.05$). Although there appeared to be a descriptive labeling effect on how full and satisfied diners were after finishing their item (6.83 vs. 4.47) this was not significant due to differences across the different menu items.

Insert Table 1

Why do we see this impact of descriptive labels? Consistent with H_2, descriptive labeling encouraged diners to generate a greater number of favorable comments about the product compared to those who saw a regular label (1.9 vs. 0.9 comments; $F_{1, 131} = 4.71$, $p<.05$). While all people were reasonably positive toward the products, those given descriptive labels were even more so. People in both the descriptive and regular conditions were equally likely to provide negative comments about the food (0.9 vs. 0.8 comments; $F_{1, 131} = 0.23$, ns). While it was hypothesized there would be a crossing interaction between the label conditions and the valence of comments they stimulated, the primary difference was that those who saw descriptive labels were slightly more positive in their open-ended comments than those in the regular condition.

Insert Figure 1

It was also believed there would be a difference in the types of comments people expressed (H_3). This was not found. On average, those in both groups showed a balance between the general evaluative comments they made and the attribute-specific comments made. Those seeing the descriptive label generated 1.5 general evaluative comments and 1.3 attribute-specific comments. Those seeing the regular labels generated 0.9 general evaluative comments and 0.8 attribute-specific ones. While those seeing the descriptive label and those seeing the regular label both generated a higher number of general evaluative comments (1.5 vs. 0.9; $F_{1, 131} = 3.73$, $p<.05$) and a similar number of attribute-specific comments (1.3 vs. 0.8; $F_{1, 131} = 2.12$, ns), this was largely due to them generating more comments and not to an asymmetry in processing

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Insert Figure 2

Discussion

The name of a food is an important criterion for decision-making. When the foods were of reasonably high quality, descriptive labels enhanced how appealing, how tasty, how satisfying, and how caloric the food was evaluated. This was consistent with the thoughts people generated when evaluating the products. Those seeing the descriptively labeled products were much more likely to focus on the positive aspects of the foods than the negative aspects.

In summery, those who saw descriptive labels were slightly more positive in the open-ended statements they made about the product, but the nature of these thoughts (general vs. attribute-specific) was similar as those who saw the regular label. This is important in that it shows that there may be a somewhat mindful process occurring in one's evaluation of these products and that it is not simply a mindless assimilation to the expectations that can be elicited by descriptive labels. While the size of the effects were smaller than anticipated, they are stronger than those found in some studies and particularly strong given the field situation in which the data were collected.

This complements existing research by showing the influence of descriptive labels in a commonly found context. This research was intended not to test extreme boundary conditions of assimilation and contrast, but to provide needed evidence of the impact of descriptive labels in a common environment (Deliza and MacFie 1996).

One methodological contribution this research emphasizes is the importance of collecting and analyzing open-ended responses from participants. When such information is collected, it is typically underanalyzed and reported simply as the frequency of various comments. By coding thoughts as negative or positive and by whether they represent general evaluations or attribute-specific comments, there is another level of analysis that can be made. Further research may even find it prudent to code such comments by whether they are hedonic or utilitarian statements.

In this study, the descriptive labels that were used had all been pretested to evoke favorable associations with the food, and all of the food used in this study was of reasonably high quality. If food of only average or below average quality was used, descriptive labels may have had less of an impact. Using an unmerited descriptive label might backfire and negatively influence customers' attitudes about the item.

An interesting note is whether descriptive menu labeling leads people to consume more of the food than they otherwise would have. If descriptive labels improved a person's sensory perceptions of the food, it might also influence how much they wanted to eat. Conversely, however, if descriptive labels also lead people to believe the food was more caloric (as we found), and it may actually decrease how much is ultimately eaten.

Future Research and Limitations

As Deliza and MacFie (1996) note, there is a sparse literature on how advertising and packaging influence sensory perception at the moment of consumption. While some of the existing studies in this area have found weak or mixed effects, one concern is because they are dealing with artificial situations in which participants do not really have

any stake in the task. One solution would be to examine the evaluation of actual diners who had made actual choices. In examining this in a natural environment, we were willing to trade off some internal control in exchange for external validity.

One necessary consequence of this approach is that diners had self-selected their own items instead of being randomly assigned to a particular label condition. While this increases realism, the purchase of a food may come with different expectation sets. Clearly, descriptively labeled food was more appealing at the point-of-purchase since their sales were 27% higher on the average day (Wansink, Painter, and van Ittersum 2001).

A second limitation involves the open-ended nature of the comments people provided after eating their selection. In this particular cafeteria, different foods and recipes are frequently being tested and evaluated as a part of a grade for the students in the Food Science and Human Nutrition program. Because this is known by the majority of the faculty and staff diners in this cafeteria, it may influence their responses. For instance, they might be more positive or they might be more analytic than they would otherwise be. Although there is no reason to think the differences between the descriptive label and the regular label are not robust, the exact mix of the content of these open-ended comments needs to be examined in additional contexts.

Implications

Dietitians in institutional or private settings may be able to improve perceptions of a food's appearance and taste by providing it with an appropriately descriptive labels. This may be particularly valuable when trying to facilitate the introduction of unfamiliar

foods. Recent studies, for instance, have been investigating how different names (such as "soya") can help change people's perception of a product containing soy.

Customers associate the descriptions on labels with their expectations of how the quality of the food will taste and make them feel. As noted elsewhere (Wansink et al 2001), vivid adjectives that portray geographic, nostalgic, or sensory themes can help trigger these anticipated feelings and expectations. For instance, geographic labels that claim to reproduce the same flavors that are specifically found in geographic areas have proven successful if adjectives are used to create that image or ideology. Similarly, nostalgia labels alluding to past time periods can trigger happy memories of family, tradition, and identity.

One method used to generate descriptive labels is to brainstorm food-related associations that can tie the food to relevant places, memories, or descriptive adjectives. A second means for is to physically note the variety of descriptive labels used at different restaurants, such as high-end restaurants and theme restaurants.

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Table 1.
How Suggestive Food Labels Influence Sensory Perceptions[a]
(Standard Deviations in Parentheses)

	Labels		
	Regular Name (control group) (n=56)	**"Descriptive Label" (n=84)**	**F-test (1, 133)**
Post-Consumption Food Perceptions			
--This item was appealing to the eye	5.87 (2.083)	6.66 (1.59)	6.49**
-- This item tasted good	6.83 (1.60)	7.31 (1.19)	3.94**
-- After finishing this menu item, I felt comfortably full and satisfied	4.47 (1.97)	6.83 (1.68)	1.36[ns]
-- How many calories did this item contain?	302 (132)	366 (250)	3.32**

** = p < .05, ** = p < .01*

[a] Measures range from 1 = strongly disagree to 9 = strongly agree.

Figure 1.
How Descriptive Labels Influence the Valence of Open-ended Feedback

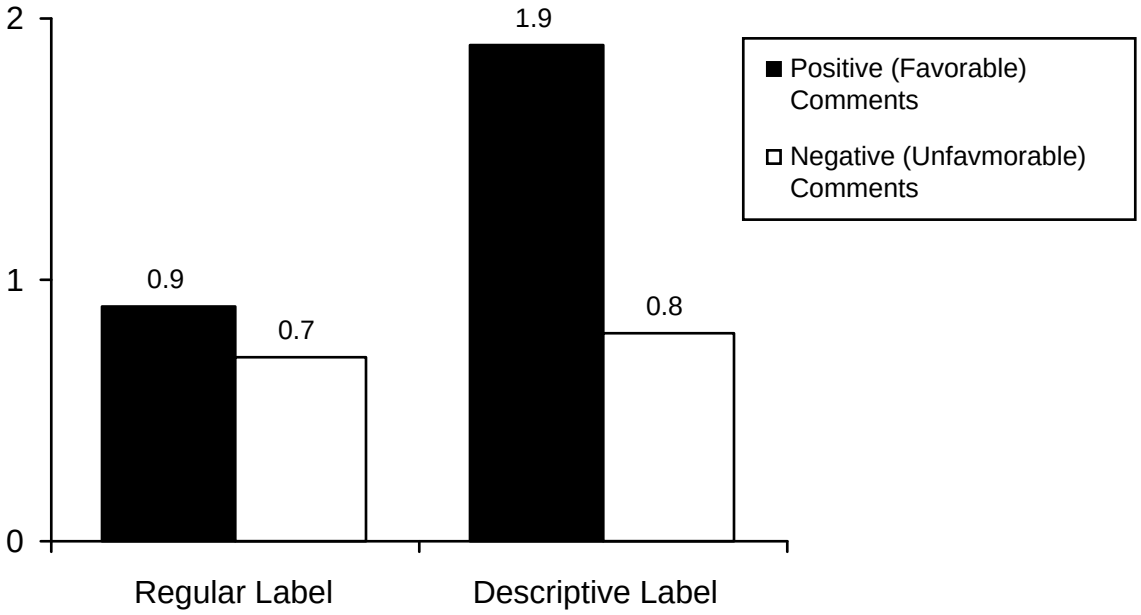

Figure 2.
How Descriptive Labels Influence the Content of Open-ended Responses