

How descriptive food names bias sensory perceptions in restaurants

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Abstract

Can a dietitian, restaurateur, marketer, or parent change the perceived taste of a food simply by changing its name? In a six-week cafeteria experiment involving 140 customers, those who ate foods with evocative, descriptive menu names (such as “Succulent Italian Seafood Filet”) generated a larger number of positive comments about the food and rated it as more appealing, tasty, and caloric than those eating regularly-named counterparts (e.g., “Seafood Filet”). The open-ended comments indicated that their evaluations were assimilated with prior taste expectations in a manner that is more deliberate and less automatic than most research typically claims. For practitioners, the use of descriptive names may help improve perceptions of foods in institutional settings, and it may help facilitate the introduction of unfamiliar foods.

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1. Introduction

Can menu names suggestively influence the perceived taste of restaurant food? A person’s expectations about the taste of a food can have a sizable impact on their sensory evaluation of it (Cardello, Maller, Masor, Dubose, & Edelman, 1985; Schifferstein, Kole, & Mojet, 1999). This was vividly demonstrated in the early 1940s when studies commissioned by the US Committee on Food Habits examined the feasibility of serving organ meats—such as brains, kidneys, tongue, and liver—as potential home-front replacements for traditional cuts of beef and pork which were in short supply during World War II. The taste of these organ meats was generally acceptable when the type of meat was undisclosed. Once disclosed, however, the meats became repulsive to many segments of American consumers and their taste

evaluations predictably confirmed their repulsion (Wansink, 2002).

Research in this area of names and labels has typically focused on nutritional labels, health labels, and warning labels (Caswell & Mojduszka, 1996; Miller, Castellanos, Shide, Peters, & Rolls, 1998), with notably less research directed toward the expectations developed by descriptions or by the name on the labels (Aaron, Evans, & Mela, 1995). Nonetheless, descriptive and evocative names for food are frequently found on restaurant menus and the use of favorably descriptive names has been shown to increase sales of those items by 27% (Wansink, Painter, & Van Ittersum, 2001). Although it is easy to believe that a piece of chocolate cake would generate more first time sales if named “Belgian Black Forest Double Chocolate Cake,” it is not clear what happens after a person tastes the cake. Do these heightened expectations make them more predisposed toward disappointment or toward enjoyment?

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Descriptive names might add a positive halo to a food (Cardello, 1994; Cardello & Sawyer, 1992), they might have no effect (Tuorila, Meiselman, Cardello, & Leshner, 1998), or they might even “backfire” if they unfairly raise expectations that lead to disappointment (Richardson, Dick, & Jain, 1994). Even though there has been recent progress in this area, there is still truth to Deliza and MacFie’s (1996) observation that more work can be done on how advertising and packaging generate sensory expectations and how these are translated into post-consumption sensory evaluations.

This research examines how descriptive names influence post-consumption evaluations of menu items in a cafeteria. After providing a brief overview of the mechanism underlying the effect of descriptive names, exploratory hypotheses are formulated and tested in a six-week field study of six menu items involving 140 adults.

One’s prior expectations of a food can have a notable impact on subsequent post-consumption evaluations (Cardello, Schutz, Snow, & Leshner, 2000). Yet, as with perceptions of quality, these evaluations can be subtly influenced (Mojduszka & Caswell, 2000; Wandel & Bugge, 1995, 1997). Even information related to a food’s fat content, for instance, can influence taste expectations of foods and their post-consumption evaluation (Kahkonen & Tuorila, 1998).

2. How people evaluate descriptive menu names

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 can establish an affect state (Mela, 1999) that may bias their taste evaluation. Unless these expectations are grossly disconfirmed (Richardson et al., 1994), lab studies show that their post-consumption evaluation seems to generally be assimilated with prior expectations. If one thinks it will taste good, it probably will taste good. If one thinks it will taste bad, it probably will taste bad.

As long as the foods are not too different (worse) than what was expected, these favorable associations appear to form an attitude and sensory halo. This resulting attitude halo not only favorably influences how a person thinks a food looks and tastes, but it might also influence estimations of how caloric the product is and how satisfying and satiating it was (cf. Shide & Rolls, 1995). This might be expected if descriptive names or labels encourage one to think more about the hedonic (taste-related) aspects of the food and less about its utilitarian aspects (such as it being reasonably priced). By

providing a more rich, hedonic stimulus (in the form of a descriptive food name), one’s thoughts and evaluations may be reflected in a similar direction. In short, we believe that favorably descriptive menu names can increase sensory perceptions of appearance and taste just as they have been shown to influence food sales, restaurant attitudes, and repurchase intentions.

H₁. When a food name is favorable, the use of favorable descriptive names or labels will increase post-consumption sensory ratings.

Let us assume that part of the reason that favorable names yield favorable evaluations is because these descriptive and evocative names or labels encourage one to think about the food in a way that is more hedonic in nature and less utilitarian (Chandon, Wansink, & Laurent, 2000). If a person is cued to the hedonic nature of a product by a descriptive name, this should be reflected in the valence of the comments he or she makes about the food. If positively cued by a favorably descriptive name, a person should generate a greater number of positive comments about the food and a smaller number of negative comments than those who saw the less descriptive regular name. This should be reflected in the number and type of thoughts a person writes down when asked to comment on the food. We hypothesize,

H₂. Compared to a person evaluating a food with a regular name, 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 and writes down can be coded as being either heuristic-based or analytic-based (Sujan, 1985). People who are heuristic-based tend to provide general evaluative comments (“great” or “excellent”) when asked to comment on a product. Those who are analytic-based tend to generate more attribute-specific comments (“this tastes sweet” or “this is crunchy”).

People who are given a descriptive name of a food may tend to be more general and less analytical in their thinking about it. If true, this would also be evidenced by the types of comments they make when asked about the food. That is, compared to those seeing a regular name, those seeing a descriptive name may generate a greater proportion of general evaluative comments (“great” or “excellent”) compared to attribute-specific comments.

H₃. Compared to a person evaluating a food with a regular name, 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.

Hypothesis 3 is consistent with an assimilation perspective. That is, if a person is assimilating their evaluation of the food with their prior expectations of how they thought it would taste, they should evoke more general evaluative comments when asked about it. If they instead make a relatively high proportion of attribute-specific comments, the hypothesis would be rejected, and it would suggest this process is more mindful than has been portrayed by past researchers (Hoch & Ha, 1986).

3. Method

To determine how people respond to descriptive names, we conducted a six-week field experiment in the Bevier Cafeteria at the University of Illinois at Urbana-Champaign. After reviewing the past sales of products in the cafeteria, we selected six products that were popular enough to be offered twice a week. The general policy of the cafeteria was to present basic menu names that typically involved little description. In designing descriptive names, we used a mix of geographic names, nostalgic names, and sensory-related names that were presented both on menu boards and on display labels 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), and 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 their regular name (e.g., grilled chicken); two items were presented with a descriptive name; and two items were not offered. For each of the next two weeks, the items and the conditions were systematically rotated until all menu items were presented in all conditions. The rotation was repeated in weeks four through six. 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 by the person at the cash register to complete a one-page questionnaire. Because new recipes are often tested in the cafeteria and evaluated by patrons, the same Human Subjects guidelines were used and approved for this study. Ninety-eight percent of the subjects (140) completed and returned their questionnaires upon finishing their

meal and leaving the cafeteria. After answering basic demographic questions (age, gender, and education), diners were asked to use 9-point Likert scales (1 = strongly disagree; 9 = strongly agree) to indicate the extent to which they agreed or disagreed with a number of one item statements related to sensory perceptions and to their dietary habits. The sensory perception statements were the standard ones that were generally asked when testing the acceptance of various recipes in this particular cafeteria. These included, "This item was appealing to the eye," "This item tasted good," and "After finishing this menu item, I felt comfortably full and satisfied." The two dietary habit statements ("I try to eat nutritiously," and "I carefully watch what I eat") were also asked on the same 9-point scale (1 = strongly disagree; 9 = strongly agree). Following this, diners were asked to estimate how many calories they thought the target menu item contained.

On the back of the questionnaire, people were asked to comment on the food. A total of 537 comments were expressed (3.8 comments per person) with 481 (89.6%) focusing on qualities of the food, and 56 focusing on 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 4% were visitors from off-campus. Ages ranged from 23 to 74 with the mean age being 43.2 years. As will be discussed in the results section, there were no significant demographic differences between those who bought the descriptively-named menu items and those who bought the regularly-named menu items.

To be able to examine the open-ended responses related to the food (89.6% or 3.4 per person), two coders (including one author) coded these responses as being extremely positive in valence or extremely negative in valence. They agreed on 86.1% of the responses and the remaining classifications were resolved through discussion. To examine H₃, these responses were also coded as to whether they represented general evaluative comments (such as "excellent" or "so-so") or attribute-specific comments (such as "tastes sweet" or "overcooked"). The 78.3% agreement in categorization was also resolved through discussion.

4. Results

Analyses of variance were conducted to examine whether the descriptive food names influenced sensory perceptions (descriptive name versus regular name). Gender and age were used as covariates in the analyses, and indicator (dummy) variables were used to account for mean-level differences for each of the different foods. In line with the general expectations for H₁, descriptive names were viewed as more appealing (6.66 vs. 5.87;

Table 1
Descriptive food names influence sensory perceptions in restaurants (means with standard deviations in parentheses)

Naming condition			
Post-consumption food perceptions	Regular name (control group) (<i>n</i> = 56)	Descriptive name (<i>n</i> = 84)	<i>F</i> -test (1, 133)
This item was appealing to the eye ^a	5.87 (2.08)	6.66 (1.59)	6.49**
This item tasted good ^a	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**

** $p < .01$.

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

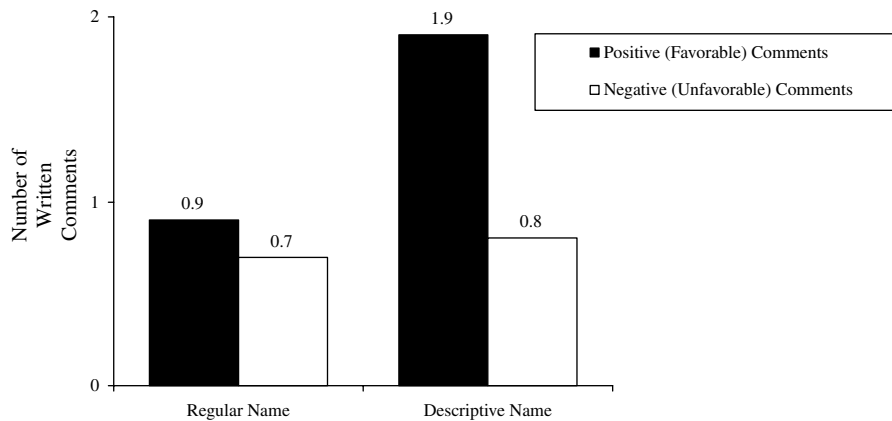


Fig. 1. Descriptive names elicit a larger number of favorable comments.

$F_{1,133} = 6.49$, $p < .01$), as tastier (7.31 vs. 6.83; $F_{1,133} = 3.94$, $p < .01$), and as more caloric (366 vs. 302; $F_{1,133} = 3.32$, $p < .01$). These results are illustrated in Table 1.

Why do we see this impact of descriptive names? Consistent with H_2 , descriptive names encouraged diners to generate a greater number of favorable comments about the food compared to those who saw a regular, less descriptive name (1.9 vs. 0.9; $F_{1,133} = 4.71$, $p < .05$). Diners in both the descriptive and regular conditions were equally less likely to provide negative comments about the food (0.9 vs. 0.8; $F_{1,133} = 0.23$, $p > .10$). Recall that it was hypothesized there would be a crossing interaction between the two conditions and the valence of comments they stimulated. Instead, the primary difference we found was that people who saw descriptive names were slightly more positive in their open-ended comments than those who saw the regular, less descriptive names (Fig. 1).

It was also believed there would be a difference in the types of comments (general evaluative versus attribute specific) people expressed (H_3). This was not found ($p > .10$). On average, those in both groups showed a balance between the general evaluative comments they made and the attribute-specific comments they made. In contrast, those target foods which had been given descriptive names generated 1.5 general evaluative comments and 1.3 attribute-specific comments. Those tast-

ing foods with regular names generated 0.9 general evaluative comments and 0.8 attribute-specific ones. While those seeing the descriptive name generated a relatively higher number of general evaluative comments (1.5 vs. 0.9; $F_{1,133} = 3.73$, $p < .05$), this was largely due to them generating more comments and not to an asymmetry in processing.

One concern in non-randomized design field studies is that the people who self-select themselves into one condition might be substantially different than those in another condition. To determine if both groups of diners were indeed comparable, they were compared across their demographic characteristics (including age, gender, and education), on the basis of whether they tried to eat nutritiously, and on how carefully they watched what they ate. As Table 2 indicates, we found no differences between those who bought the descriptively-named menu items and those who bought the regularly-named menu items ($p > .10$ across all variables). This gives us confidence that the differences we find are due to the presence or absence of descriptive names and not due to differences in sample characteristics.¹

¹ One factor contributing to this equivalence is the fact that the cafeteria typically had a limited array of foods (four entrées, four side dishes, or four desserts). People may have selected items on the basis that they fulfilled a general preference ("I want something chocolate") than because they were ideally desired.

Table 2

There were no differences between the two samples of consumers (means with standard deviations in parentheses)

Naming condition			
Sample characteristics	Regular name (control group) ($n = 56$)	Descriptive name ($n = 84$)	F -test (1, 133)/Chi-square test
I try to eat nutritiously ^a	6.44 (1.98)	6.09 (1.93)	1.53 ^{ns}
I carefully watch what I eat ^a	6.30 (1.79)	5.83 (2.10)	2.71 ^{ns}
Age	49.22 (14.49)	46.31 (12.14)	2.08 ^{ns}
Gender (% female)	54.3%	46.7%	1.07 ^{ns}
Education (% high)	61.5%	52.0%	1.71 ^{ns}

^{ns} ns = nonsignificant at $p < .10$.

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

5. Discussion

The name of a food provides a cue as to what might be expected from the taste. While we might believe that we know what we like, we appear to be surprisingly influenced by such cues. Past work has shown descriptive names improved sales and improved expectations related to the food and to the restaurant (Wansink et al., 2001). This study shows that the heightened expectations for these same descriptively-named foods led diners to generate a greater number of favorable comments about the food, and to rate it as being more appealing, more tasty, and more caloric than its identical (but regularly-named) counterpart.

From an empirical standpoint, this study shows how expectations generated by an important and easily modified cue—a food's name—can influence one's sensory evaluation of the food. The analysis of open-ended responses provides evidence of the process. Prior work has emphasized that when cues are presented, an assimilation occurs between one's expectations of a food's taste and one's actual post-consumption evaluation of it (Cardello & Sawyer, 1992; Tuorila & Cardello, 2002). While our results are consistent with this assimilation

perspective, they show that this process is not necessarily automatic or without deliberate thought. An analysis of the comments that people generated after eating the foods showed that they generated a proportionally similar number of attribute-related comments regardless of the condition they were in (recall Fig. 2). This is important because it shows that the process was more deliberate than is often portrayed (Hoch & Ha, 1986).

5.1. Interesting additional cues that could bias evaluations

In addition to a food's name, there are other cues that could influence expectations and sensory evaluations of it. The visual appeal of a prepared food, including its presentation or how it is garnished or plated, could provide an important cue that biases or alters the set of expectations that one has for the food (Wansink, 2005). If the food is of reasonable quality, its evaluation may further benefit from the addition of these cues.

Similarly, the packaging of a food or beverage may provide a cue that influences taste evaluations, and it could be particularly important with relatively unfamiliar product categories (Tuorila et al., 1998). Indeed, the

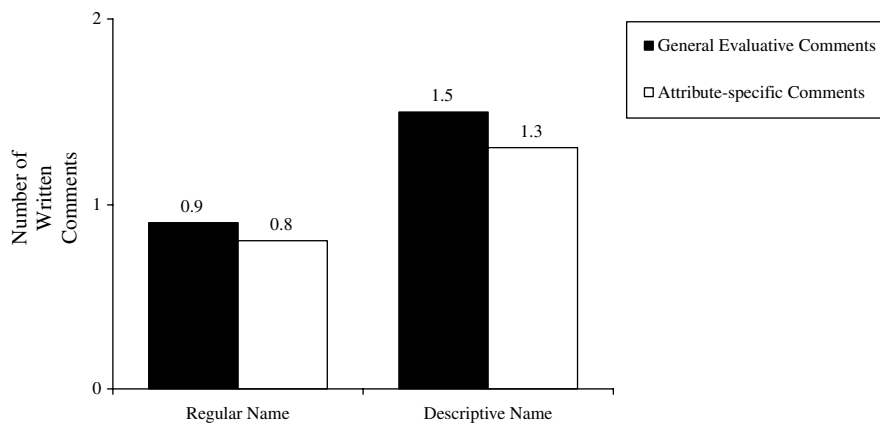


Fig. 2. Descriptive names do not elicit proportionally more general evaluative comments. (Note. The numbers represent the average number of comments given by the respondents.)

elaborate packaging for new vodkas may not only encourage purchase, but it might also influence one's subjective taste. The same would be true with wine. In light of these findings, a basic two-step wine buying approach of choosing a price level and then choosing an attractive wine bottle, may have merit. If the name, origin, graphics, or shape of a wine bottle leads us to expect it will taste good, it probably will.

Odors and scents provide important taste-related cues. Recent technologies enable packaging to be impregnated with pleasant aromas and other technologies enable such aromas to be released when one opens a package. Such an odor cue is likely to bias taste expectations and the resulting taste interpretation. Yet because of the precarious connection between smell and taste, it is not clear whether enhanced odors have the potential to improve the favorability of food, or whether it could just as easily back-fire.

Last, there is evidence that simply mentioning certain ingredients or attributes of a food (such as "reduced fat" or "Atkins approved") can provide cues that create either positive or negative biases (Kahkonen & Tuorila, 1998; Tuorila et al., 1998). This highlights the fact that a specific ingredient in a food can provide a cue that biases taste evaluations (Wansink, 2003), independent of its physiological effects on glucose and the like (Painter & Priseccaru, 2002). For instance, people who were given an energy bar purportedly containing soy protein rated it as grainy and tasteless, compared to identical bars with no mention of the word "soy" (Wansink & Park, 2002). In reality, there was no soy in either of the bars. Simply the suggested presence of soy made people believe they tasted it, and they evaluated it accordingly. With unfamiliar production processes, such as those involving biotechnology or irradiation, it may be that such processes provide unwanted cues that unjustly influence expectations and sensory evaluations.

5.2. Implications for brand equity research

This research contributes to the sensory area of brand equity. With a growing increase in the number of available store brands, there is a corresponding concern by managers of national brands as to whether shoppers will continue to pay premium prices for smaller and smaller differences in quality.

Past research by Hoch and Ha (1986) showed that when looking at nonfood products, quality-related cues (such as a brand's name) improve evaluations of products only when people did not have the expertise to evaluate them. In our context, the more unfamiliar a person is with a food category, the more likely he or she will use a brand name or perhaps a region-of-origin to infer favorable taste qualities that may not actually exist (Van

Ittersum, Candel, & Meulenberg, 2003). In contrast, the more familiar they are with a wide range of brands within a category, the less difference a "big name" will make on their sensory evaluations (in the absence of quality differences).

Processing measures (the thoughts and feelings one has about the food) are not often used in sensory research related to brands, but they could be very important if analyzed in terms of their hedonic versus utilitarian content (Chandon et al., 2000). For example, one possible indication of a brand's strength may be the extent to which sensory experiences are described in hedonic terms (such as "creamy" or "satisfying") instead of more practical or utilitarian terms (such as "caloric" or "filling"). The more equity a brand has, the more we might think a person would use hedonic terms when describing their sensory experiences with the brand.

5.3. Future research and limitations

While research interest in the area of cues and sensory evaluation is increasing, we need to know more about how advertising and packaging influence sensory perception at the moment of consumption (Deliza & MacFie, 1996). Some of the existing studies in this area have found weak or mixed effects, and one possible reason is that they involved laboratory evaluation situations in which participants may not have been highly involved with the task (Kahkonen, Tuorila, & Lawless, 1997). Our solution to this was 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 (Rozin & Tuorila, 1993).

One necessary consequence of this approach is that diners selected their own items instead of being randomly assigned to a particular condition. Although there were no differences between the groups (recall Table 2), their self-selection of their foods could have intensified the role that expectations played in subsequent evaluations.

A second limitation involves the open-ended nature of the comments people provided after eating their selected food. 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 at the University of Illinois at Urbana-Champaign. Because this is known by the majority of the diners in this cafeteria, it may have influenced their responses. For instance, these diners might have been more positive or more analytic than they would have otherwise been. Although there is no reason to think the differences between the descriptive name and the regular name are not robust, the exact

mix of the content of these open-ended comments needs to be examined in additional contexts.

Future research could also examine what types of differences exist between different types of foods. Because of the field situation in which this was conducted, we could not control how many people were given the different types of foods. As a result, the total number of menu items selected was enough to conduct an aggregate test of descriptive names, but it was not enough to conduct a food-by-food analysis. Some foods, such as desserts, may be less influenced by names than entrees or side dishes because they are expected to taste good and are already at an evaluation ceiling. For instance, it has been found that “diet” labels and “health” labels influence the sales and taste evaluation of desserts differently than of entrées (Wansink, Van Ittersum, & Painter, 2004). This, in part, can help reconcile the inconsistencies and mixed findings in the area of how food labeling influences the perceptions, tastes, and evaluations of foods (Tuorila, Cardello, & Leshner, 1994). Certain types of labeling (such as those related to diet or health) might be more effective at influencing the evaluation of hedonic and highly favorably foods (such as desserts) then they would be of influencing more utilitarian foods (such as many entrées).

Given the interest in better understanding the subtle drivers of obesity, it is interesting to speculate whether descriptive menu names lead people to consume more of the food than they otherwise would have. If descriptive names improved a person’s sensory perceptions of the food, it might also influence how much one wanted to eat. Conversely, if descriptive names also lead one to believe the food was more caloric (as we found), and it may actually decrease how much is ultimately eaten.

References

- Aaron, J. I., Evans, R. E., & Mela, D. J. (1995). Paradoxical effect of a nutrition labeling scheme in a student cafeteria. *Nutrition Research, 15*(9), 1251–1261.
- Cardello, A. V. (1994). Consumer expectations and their role in food acceptance. In H. J. H. MacFie & D. M. H. Thomson (Eds.), *Measurement of Food Preferences*. London: Blackie Academic.
- Cardello, A. V., Maller, O., Masor, H. B., Dubose, C., & Edelman, B. (1985). Role of consumer expectancies in the acceptance of novel foods. *Journal of Food Science, 50*(6), 1707.
- Cardello, A. V., & Sawyer, F. M. (1992). Effects of disconfirmed consumer expectations on food acceptability. *Journal of Sensory Studies, 7*, 253–277.
- Cardello, A. V., Schutz, H., Snow, C., & Leshner, L. (2000). Predictors of food acceptance, consumption and satisfaction in specific eating situations. *Food Quality and Preference, 11*(3), 201–216.
- Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products. *American Journal of Agricultural Economics, 78*(5), 1248–1253.
- Chandon, P., Wansink, B., & Laurent, G. (2000). A benefit congruency framework of sales promotion effectiveness. *Journal of Marketing, 64*(October), 65–81.
- Deliza, R., & MacFie, H. J. H. (1996). The generation of sensory expectation by external cues and its effect on sensory perception and hedonic ratings: A review. *Journal of Sensory Studies, 11*(2), 103–128.
- Hoch, S. J., & Ha, Y. W. (1986). Consumer learning: advertising and the ambiguity of product experience. *Journal of Consumer Research, 13*(September), 221–233.
- Kahkonen, P., & Tuorila, H. (1998). Effect of reduced-fat information on expected and actual hedonic and sensory ratings of sausage. *Appetite, 30*(1), 13–23.
- Kahkonen, P., Tuorila, H., & Lawless, H. T. (1997). Lack of effect of taste and nutrition claims on sensory and hedonic responses to a fat-free yogurt. *Food Quality and Preference, 8*, 125–130.
- Mela, D. J. (1999). Food choice and intake: The human factor. *Proceedings of the Nutrition Society, 58*(3), 513–521.
- Miller, D. L., Castellanos, V. H., Shide, D. J., Peters, J. C., & Rolls, B. (1998). Effect of fat-free potato chips with and without nutritional labels on fat and energy intakes. *The American Journal of Clinical Nutrition, 68*, 282–290.
- Mojduszka, E. M., & Caswell, J. A. (2000). A test of nutritional quality signaling in food marketing prior to implementation of mandatory labeling. *American Journal of Agricultural Economics, 82*(2), 298–309.
- Painter, J. E., & Prisecaru, V. I. (2002). The effects of various protein and carbohydrate ingredients in energy bars on blood glucose levels in humans. *Cereal Food World, 47*(6), 236–241.
- Richardson, P. S., Dick, A. S., & Jain, A. K. (1994). Extrinsic and intrinsic cue effects on perceptions of store brand quality. *Journal of Marketing, 58*(October), 28–36.
- Rozin, P., & Tuorila, H. (1993). Simultaneous and temporal contextual influences on food acceptance. *Food Quality and Preference, 4*, 11–20.
- Schiffstein, H. N. J., Kole, A. P. W., & Mojet, J. (1999). Asymmetry in the disconfirmation of expectations for natural yogurt. *Appetite, 32*, 307–329.
- Shide, D. J., & Rolls, B. J. (1995). Information about fat content of preloads influences energy intake in healthy women. *Journal of the American Dietetic Association, 95*, 993–998.
- Sujan, M. (1985). Consumer knowledge: Effects on evaluation strategies mediating consumer judgments. *Journal of Consumer Research, 12*, 31–46.
- Tuorila, H. M., Meiselman, H. L., Cardello, A. V., & Leshner, L. L. (1998). Effect of expectations and the definition of product category on acceptance of unfamiliar foods. *Food Quality and Preference, 9*(6), 421–430.
- Tuorila, H., & Cardello, A. V. (2002). Consumer responses to an off-flavor in juice in the presence of specific health claims. *Food Quality and Preference, 13*, 561–569.
- Tuorila, H., Cardello, A. V., & Leshner, L. L. (1994). Antecedents and consequences of expectations related to fat-free and regular-fat foods. *Appetite, 23*(3), 247–263.
- Van Ittersum, K., Candel, M. J. J. M., & Meulenberg, M. T. G. (2003). The influence of the image of a product’s region of origin on product evaluation. *Journal of Business Research, 56*(3), 215–226.
- Wandel, M., & Bugge, A. (1997). Environmental concern in consumer evaluation of food quality. *Food Quality and Preference, 8*, 19–26.
- Wandel, M., & Bugge, A. (1995). Consumer valuation of food quality. *Appetite, 24*(2), 198.
- Wansink, B. (2003). Overcoming the taste stigma of soy. *Journal of Food Science, 68*(8), 2604–2606.

- Wansink, B. (2005). *Marketing nutrition: Soy, functional foods, biotechnology, and obesity*. Champaign, IL: University of Illinois Press.
- Wansink, B., & Park, S. B. (2002). Sensory suggestiveness and labeling: Do soy labels bias taste? *Journal of Sensory Studies*, 17(5), 483–491 November.
- Wansink, B., Painter, J. M., & Van Ittersum, K. (2001). Descriptive menu labels' effect on sales. *Cornell Hotel and Restaurant Administrative Quarterly*, 42(December), 68–72.
- Wansink, B. (2002). Changing eating habits on the home front: lost lessons from World War II research. *Journal of Public Policy and Marketing*, 21(Spring), 90–99.
- Wansink, B., Van Ittersum, K., & Painter, J. E., 2004. How diet and health labels influence taste and satiation. *Journal of Food Science*, forthcoming.
- Wright, L. T., Nancarrow, C., & Kwok, P. M. H. (2001). Food taste preferences and cultural influences on consumption. *British Food Journal*, 103(2), 348–357.