Taste Discrimination: the Influence of Visual and Verbal Cues

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Perceptual discrimination is a precursor to rational choice in many product categories, yet previous research has largely ignored consumer performance on such tasks. The present research investigates discrimination ability, specifically focusing on the extent to which consumers accurately perceive the difference between identical and nonidentical gustatory stimuli. Three experiments show systematic bias resulting from the presence of common visual and verbal product-related cues. The strength of the bias varies as a function of the type of cue. In some instances a subtle, nonevaluative cue is shown to induce greater bias than is induced by well-established evaluative cues.

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EXTENDED ABSTRACT

Perceptual discrimination is a precursor to choice in many categories, yet previous research has largely ignored consumers’ discrimination skills. The present research focuses on the extent to which consumers accurately perceive the degree of difference between identical and nonidentical gustatory stimuli when presented in the context of visual and verbal marketing cues. The visual cue of interest is color. We consider the conflict between color and taste—an interaction that is not without precedent in marketing research but one that has been investigated primarily from the perspective of affective response rather than sensory discrimination (e.g., Garber, Hyatt, and Starr 2000). We test the effect of color by focusing on two measures: (a) the perceived difference between stimuli that are identical in taste but different in color and (b) the perceived difference between stimuli that differ in taste but not in color. Both discriminations are tested against a same-color control to determine whether color dominates taste such that there is greater perceived similarity between two stimuli that share the same color but differ in taste than between two stimuli that share the same taste but differ in color. The verbal cues consisted of well-established market-based cues that previously have been shown to alter consumer perceptions (e.g., Allison and Uhl 1964; Hoyer and Brown 1990).

Experiment 1. Experiment 1 involved an orange juice taste test that compared the influence of subtle color differences (i.e., similar hues of orange) against two benchmarks. The first was a same-color control condition. The second was a verbal-label condition that should prompt expectations of difference. Specifically, the labels referred to the juice samples as having been produced in California versus Florida. The orange juice was manipulated to create three levels of sweetness: low, medium, and high. Participants were presented with four cups of juice: one low sweet, two medium sweet, and one high sweet. In the color condition, the low sweet and one of the medium sweet items were both a lighter color whereas the other medium sweet and the high sweet items were both a darker color (counterbalanced). In the Label condition, the low and one of the medium sweet items were labeled “Florida” whereas the other medium sweet and the high sweet items were labeled “California” (counterbalanced). In the Control condition, the samples were labeled 1, 2, 3, and 4. Participants tasted the juices in random order and then expressed their perceptions of taste difference between (1) the two identical (medium sweet) items with different colors or labels and (2) the distinct items (low-medium or medium-high) with the same color or label. Results indicated that, relative to the control, participants in the Color condition exaggerated the difference between identical tasting stimuli and minimized differences between distinct stimuli. In fact, participants in this condition perceived a greater difference between identical tasting stimuli that differed in color than between different tasting stimuli of the same color. Thus, color dominated taste. Participants in the Label condition exaggerated the difference between identical stimuli with different region labels but did not minimize differences between distinct stimuli with the same label. Thus, the region label influenced but did not dominate taste.

Experiment 2. Experiment 2 was conducted to (a) confirm the color dominance observed in Experiment 1, and (b) strengthen the label manipulation by replacing the region labels with cues that have previously been shown to influence preferences, namely, brand and price labels. Participants in the Brands condition were told that the stimuli were either Tropicana Pure Premium Orange Juice (a premium brand) or Winn-Dixie Orange Juice from Concentrate (a generic EDLP brand). Participants in the Prices condition were told that the stimuli were either $3.29 or $1.89 for two liters. To maximize the believability of the labels, the sweetened juices used in experiment 1 were replaced with actual Winn-Dixie and Tropicana juices. In all other respects the procedure was identical to Experiment 1. The results of the Color and Control conditions replicated the findings from Experiment 1. Surprisingly, and in contrast to prior work on the influence of brands on taste perception and preference, the Brands condition mirrored the control. The Prices condition was statistically indistinguishable from the control group, showing no exaggeration of between-group differences. Thus, the visual cue again dominated taste, but the verbal cues did not overwhelm taste perception. One possible explanation for these results involves consumers’ expectations of differences. Participants might have assumed two samples of different hue could not both be pure orange juice—which would lead to stronger expectations of taste variance relative to the verbal labels. However, a follow up study assessing expectations of difference across the three cues rendered such an explanation unlikely.

Experiment 3. Experiment 2 suggested that taste discrimination may operate differently from preference. Experiment 3 provided a more direct test of this possibility, comparing preference to discrimination for brand labels and color differences. Using identical-tasting stimuli only, participants either rated the perceived difference or rated the extent to which they preferred one over the other. Results showed that color creates greater perceived difference in taste than do brands, but, consistent with prior research on brand effects, brand labels result in stronger preferences.

Together the studies offer a starting point for much needed research on perceptual discrimination. The results suggest that discrimination does not map directly onto preference. Visual cues can dominate taste perception, whereas verbal cues, which are known to have dramatic effects on preference, exert less influence on discrimination ability.

REFERENCES


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