Effects of Set Size, Scarcity, Packaging, and Taste on the Marketing Placebo Effect

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Our study investigates how naïve theories influence product performance. More specifically, we demonstrate how set size, scarcity, packaging, and taste affect consumer performance on cognitive tasks. This research extends theory on the marketing placebo effect beyond that of price.

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/1012445/volumes/v40/NA-40

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EXTENDED ABSTRACT

The marketing placebo effect is defined as “the influence of consumers' beliefs and expectations, shaped by experiences in their daily lives, on product judgments and services” (Shiv, Carmon, and Ariely 2005). Shiv, Carmon, and Ariely (2005) demonstrated that consumer expectations mediate the relationship between product beliefs and product efficacy. In three studies, participants consumed an energy drink purported to increase mental acuity followed by a series of word-jumble puzzles. Participants were told either they would be charged $1.89 for the energy drink (i.e., the regular priced condition) or 89 cents (i.e., the discounted priced condition). Not only did participants anticipate that the full priced (vs. discounted priced) energy drink would be more (vs. less) effective, but they also completed more (vs. fewer) puzzles subsequent to consuming the drink.

Participants completed more puzzles because the naïve theory associating price with quality increased nonconscious performance expectations that the energy drink would improve mental acuity (see Rao and Monroe 1989). Within this stream of research, we investigate how other elements of the marketing mix (beyond price) affect product efficacy. In doing so, we extend theory on the marketing placebo effect and related naïve theories.

STUDY 1: SET SIZE

In a pilot study, we manipulated price to replicate the aforementioned marketing placebo effect. This study served to test the stimuli and efficacy measures used in three subsequent experiments. Study 1 investigated the impact of set size on efficacy. It is commonly held that persuasiveness increases as the number of items supporting an argument increases (i.e., the length-implies-strength heuristic; Chajken, Liberman, and Eagly 1989; Anderson 1987). Given this naïve theory, we hypothesized that a product’s efficacy would increase as the number of its positive attributes increases (H1). To test our hypothesis, we experimentally manipulated the number of active ingredients contained in an energy drink and asked participants to consume the beverage before completing a word puzzle (adapted from Shiv et al. 2005). In support of H1, we found that participants randomly assigned to the condition featuring six active ingredients outperformed participants assigned to the condition featuring three active ingredients.

STUDY 2: SCARCITY

Study 2 investigated the impact of product availability on efficacy. According to Cialdini (2009) an item’s availability is often used to infer quality or value. This association is so fundamental to human cognition, it is observed in children as young as two (Brehm and Weintraub 1977; Caplan et al. 1991; Cialdini 2009) and for products as diverse as cafeteria food (West 1975), shoes (Tan and Chua 2004), messages (Worchel 1992), wine (van Herpen, Pieters, and Zeelenberg 2009), and cookies (Worcilie, Lee, and Adewole 1975). Limited availability rouses interest in a product, increasing the likelihood of either supply- or demand-side inference formation (Kardes 1993; Kardes, Posavic, and Cronley 2004; Kardes et al. 2008; Kruglanski and Webster 1996). Hence, when consumers encounter a scarce product they often attribute its limited availability to inferred demand, which in turn is associated with quality inferences (Parker and Lehmann 2011). Given this naïve theory linking scarcity with increased quality perceptions, we hypothesized that a product’s efficacy would increase as its availability decreases (H2). To test our hypothesis, we experimentally manipulated the shelf availability of an energy drink and asked participants to consume the beverage before completing a word puzzle (adapted from Shiv et al. 2005). In support of H2, we found that participants randomly assigned to the limited availability condition outperformed participants in the abundant availability condition.

STUDY 3: TASTE AND PACKAGING

Study 3 investigated the impact of taste and packaging on efficacy. Several studies demonstrate the influence of contextual inputs on subjective consumption experiences of foods and drinks (Lee, Frederick, and Ariely 2006; McClure et al., 2004; Wansink et al., 2000). For example, Raghunathan, Naylor, and Hoyer (2006) found that consumers rated foods labeled “healthy” as worse tasting than foods labeled “unhealthy” and concluded that hedonic pleasures like taste are construed as lacking in virtue compared to objects like health. Moreover, Eccles (2006) suggested that the taste of a cough syrup is likely to influence the occurrence or magnitude of a placebo effect. Consistent with these lines of research, we hypothesized that efficacy would increase as a food item’s tastiness decreases (H3). This hypothesis is also consistent with classical conditioning theory. Since the flavor of most medicines is unpleasant (Sharma and Chopra 2010), the repeated association of medicines with unpleasant flavors pairs standard taste with efficacy expectations.

Similarly, several studies document the influence of product packaging on consumption experiences (Raghubir and Greenleaf 2006). Compared to congruent designs, product designs incongruent with consumer expectations are perceived as more risky (Campbell 1999) and evaluated more negatively (Mandler 1982). Given this naïve theory, we hypothesized that efficacy would increase as a product’s packaging typicality increases (H4). To test our hypotheses, we experimentally manipulated the taste and packaging typicality of an energy drink that purportedly relaxed the user and enhanced memory. We asked participants to consume the beverage before completing a memory task. Manipulation checks confirmed that we successfully manipulated taste and packaging typicality. In support of H3, we found that participants randomly assigned to the substandard taste condition outperformed participants assigned to the superior taste condition. Moreover, in support of H4, we found that participants randomly assigned to the typical product packaging condition outperformed participants assigned to the atypical product packaging condition.

In conclusion, this research contributes to the literature by demonstrating that there are unique features beyond price that moderate the marketing placebo effect. Overall, we conclude that any element increasing expectations of performance should magnify the marketing placebo effect. We have demonstrated that set size, scarcity, packaging, and taste all influence this effect (see table 1). Future researchers can continue to advance our understanding of the marketing placebo effect by exploring additional factors affecting expectan-
cies. This work is vital given the association of product performance with post consumption satisfaction, WOM, brand loyalty, and repeat purchasing behavior (Phillips, Chang Buzzell 1983; Westbrook 1987; Dwyer 1989; Oliver 1993; Day 1994; De Matos et al. 2008).

<table>
<thead>
<tr>
<th>Table 1: Performance as a function of expectancy</th>
<th>Study</th>
<th>Experimental Conditions (N = 400)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot Study (n = 58)</td>
<td>Low Expectancy</td>
<td>High Expectancy</td>
</tr>
<tr>
<td>Price</td>
<td>16.9 (6.2)</td>
<td>22.3 (6.8)</td>
</tr>
<tr>
<td>Study 1 (n = 58)</td>
<td>20.0 (5.4)</td>
<td>24.4 (7.8)</td>
</tr>
<tr>
<td>Set Size</td>
<td>13.6 (7.12)</td>
<td>16.6 (8.5)</td>
</tr>
<tr>
<td>Scarcity</td>
<td>11.5 (3.0)</td>
<td>13.1 (3.0)</td>
</tr>
<tr>
<td>Product Packaging</td>
<td>11.1 (2.6)</td>
<td>13.5 (3.1)</td>
</tr>
</tbody>
</table>

Note: For each row, the means across expectancy conditions differ at the p < .05 level. Standard deviations are reported in parentheses.

REFERENCES


