In Good Shape: the Influence of Container Curvature on Consumers’ Perceptions and Consumption

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Prior studies have shown that container shape can influence consumers’ perceptions and behaviour. Our study extends this research by showing that the curvature of a package (convex vs. concave) influences consumers’ inferences about calories and healthfulness, feelings of anticipated consumption guilt and ultimately how much they eat.

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EXTENDED ABSTRACT

Whether we do our grocery shopping at a supermarket, eat at our favourite restaurant or have a drink in a bar, our foods and drinks most often come in a container. This means that the contact we have with food is almost always mediated by a package. Packages themselves come in all shapes and sizes, even for products belonging to the same product category. Take, for example, the different shapes found in the soda and juice categories - from the hour-glass shape of Coca Cola bottle to the rounded shape of Tropicana. Or, for example, the differently shaped glasses used in various specialties of beers. But does package shape influence our perceptions about a product and our consumption behaviour?

Research has tackled this issue from many angles. The shape of packages and containers has been shown to influence the inferences consumers make about the content of food such as taste and caloric estimation (Becker et al. 2011; Koo and Suk 2016), or to even influence choice and consumption (Raghubir and Krishna 1999; Yang and Raghubir 2005). For example, Raghubir and Krishna (1999) showed that rectangular packages that are more elongated are perceived to be larger than same-size packages that are less elongated. Such a distorted perception further influences how much consumers eat (Raghubir and Krishna 1999; Wansink and Van Ittersum 2003). On the other hand, Koo and Suk (2016) provided evidence that, at the same time, consumers perceive a food product in elongated packages to be less caloric than an identical food in a wider packages of equal capacity. The above-mentioned research accounts for rectangular shapes.

In the case of more organic and irregular shapes Folkes and Matta (2004) unveiled a different mechanism, such that package shapes that attract more attention are perceived to be larger than same size packages that attract less attention. Our undertaking in the present research is to build upon and extend this literature by investigating whether the actual curvature of the container can influence consumers’ inferences and consumption behaviour.

In particular, in Study 1 we propose and demonstrate that the curvature of the container is likely to act as a cue for evaluating a food item’s healthfulness, due to the different conceptual associations activated by the shape. Previous research has shown that consumers are prone to use certain implicit cues to make inferences about a product’s healthfulness and caloric content. For example, the colours used on the package (Schuld 2013), the shape of the brand (Karnal et al. 2016) and even the shape of the package (Koo and Suk 2016) carry certain symbolic meanings that are used by consumers to make inferences about a food item’s healthfulness. Although they are explicitly unrelated to health, these cues activate certain associations that will spill over to judgements about a food item’s healthfulness and caloric content. Similarly, our premise is that the curvature of the container triggers associations with the human body (Epley, Waytz, and Cacioppo 2007) and that consumers use these associations to make inferences about caloric content and food product healthfulness. When a food product is presented in a concave container (where the mid-point is more narrow than the upper and bottom parts), it will be perceived to be lower in calories and more healthy than when the same food product is presented in a convex container (where the mid-point is wider than the upper and bottom parts). Our account for this is that a concave container resembles a healthy body, whereas a convex container resembles an unhealthy body. In Study 1 (between-subjects) respondents (N=226) were exposed to a bottle of juice that was manipulated to be either concave or convex and asked to estimate the caloric content (on a scale from 0 to 300 calories) and report perceived healthfulness of the product (on a 9-point scale). Respondents who saw the juice in the convex container estimated the juice to have more calories (M=198.19) than those that saw the juice in the concave container (M=170.43), t(224)=3.46, p=.001, d=.46. Additionally, the juice presented in the convex package was perceived to be significantly less healthy (M=6.61) than the juice presented in the concave package (M=7.13), t(224)=2.58, p=.010, d=.35.

In Study 2 we also find that container shape can moderate how consumers’ eating control discourse influences their anticipated consumption guilt. Using the same stimuli and design as in Study 1, this time respondents (N=339) were asked to report how guilty they would feel if they consumed the juice. Additionally, we also assessed consumers’ eating control with a three-item 7-point scale (M=.49; α = .72) (Chrysochou et al. 2010). Following a regression analysis, the marginally significant interaction between eating control and container shape (β = -.32, t(335) = -1.96, p=.051) suggests that individuals high in eating control feel more anticipated consumption guilt than individuals low in eating control when the food product is presented in a convex package, but not when the product is presented in a concave package. This is in line with previous findings which show that restrained consumers are more susceptible to nutrition information and derive more guilt when eating foods they believe to be unhealthy or high in calories (Wansink and Chandon 2006).

In Study 3 we show that consumers also eat more when the food is displayed in a convex container compared to when the food is displayed in a concave container. Participants (N=61) were instructed to serve themselves with M&Ms that were presented in either a convex or concave glass (between-subjects). Our results suggest that participants that served M&Ms from the convex glass had a significantly higher caloric intake (M=42.91) than participants that served M&Ms from the concave glass (M=26.36), t(59)=3.29, p=.002, d=0.85. This means that participants that served M&Ms from the convex glass had on average 63% more caloric intake than those that served the M&Ms from the concave glass. This is contrary to one’s first intuition that people will try to eat less from a food they consider to be high in calories or unhealthy. Our explanation for this effect is that there is another mechanism that takes over in a consumption situation, where the package becomes a visual measurement tool to monitor consumption (Wansink 2004). In this sense, it is more difficult for consumers to monitor the food displaced from a convex container because the level remaining in the container appears to decreases at a slower pace (due to a wider middle). The opposite would hold true for a concave container.

Overall, our findings indicate that the curvature of a package can influence what consumers infer about that product (the number of calories and perception of healthfulness), how they feel about consuming that product (anticipated consumption guilt) and ultimately their consumption behaviour (how much they eat), extending previous research carried out in this area (Wansink 2004). This could inform both food-marketing practitioners and public policy that aims to assist consumers in making optimal food-related decisions. For example, if the aim is to enhance perceptions of healthfulness mar-
keters might want to use a concave shaped package. On the other hand, consumers might also be benefited from being served from a concave container, as this will enable them to downsize their consumption.

However, our research is not free of limitations. We still need to acquire a more-in-depth understanding of the mechanism behind these effects and the generalizability of our current results should be accounted for through further replication studies. Additionally, certain contextual or individual factors might moderate these relations. For example, in the first two studies the food stimuli used was relatively virtue (orange juice) while in the third study the food stimuli was relatively vice (M&Ms). This has also been shown to impact consumers’ perceptions and consumption behaviour (Chernev and Gal 2010).

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