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Healthy package, healthy product? Effects of packaging design as a function of purchase setting



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ABSTRACT

Inspired by research testifying to the influence of visual packaging appearance and meaning portrayal on food evaluation, here it is argued that effects of packaging design vary depending on purchase context. Realistic packaging variants for a fictitious yoghurt brand varying in health connotation were designed. Data were collected during two field studies in the entrance halls of a discount supermarket visited by price sensitive buyers and a green supermarket frequented by organic buyers respectively. Results from a taste session in which shoppers tasted an identical yoghurt variant from either one of the two package variants revealed that packaging design influenced taste evaluation in the discount supermarket only, with a more healthy packaging appearance positively affecting perceptions of food healthiness. A follow-up study further stressed the importance of considering store environment and related shopper concerns in (packaging) design practice.

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1. Introduction

A growing body of literature testifies to the far-reaching impact that product packaging can have on consumer expectations and actual product experiences. For instance, orientation (layout) of packaging elements (e.g., Van Rompay, Franssen, & Borgelink, 2014; Velasco, Woods, & Spence, 2015), shape angularity (Becker, Van Rompay, Schifferstein, & Galetzka, 2011; Schifferstein, 2009; Velasco, Salgado-Montejo, Marmolejo-Ramos, & Spence, 2014; Westerman et al., 2012, 2013), and color usage (Deliza & MacFie, 2001; Piqueras-Fiszman & Spence, 2011; Schifferstein, Fenko, Desmet, Labbe, & Martin, 2013) are amongst the packaging features that have been shown to impact consumer perceptions. At the same time, however, effects of packaging design on food experience have been shown to vary with intrapersonal factors (e.g., design sensitivity; Becker et al., 2011; Bloch, Brunel, & Arnold, 2003), indicating that depending on target group characteristics, the 'persuasiveness' of a package is bound to vary.

Another factor which might qualify the impact of product packaging on food expectations and subsequent food experiences concerns the environment in which the package is placed. Although not focused on product packaging, previous research has shown that product-extrinsic cues (such as lighting conditions and the

number of other people present at the point of consumption) may impact perceptions and food experience (Piqueras-Fiszman & Spence, 2015; Wansink, 2006). Likewise within retailing and environmental psychology, an increasing body of research (see Spence, Puccinelli, Grewal, & Roggeveen, 2014a for a review) testifies to the impact of extrinsic, environmental factors such as color (e.g., Bellizzi & Hite, 1992), ambient lighting (e.g., Oberfeld, Hecht, Allendorf, & Wickelmaier, 2009; Spence, Velasco, & Knoefler, 2014b), and scent (e.g., Chebat & Michon, 2003) on consumer experiences and merchandise perceptions.

However, research addressing the influence of the purchase environment on packaging evaluation and subsequent food experiences is non-existent. With respect to product packaging, the store environment in which the package is placed may very well be an important aspect to reckon with, as it is here that both store image and shoppers with specific concerns come together. For instance, a general distinction may be drawn between discount supermarkets visited by price sensitive shoppers and more upscale, 'green' supermarkets (e.g., Whole Foods) where organic shoppers gather who are attuned to product quality and food healthiness. Apart from being the setting where most purchase decisions take place, and where consumers may first encounter new brands and products 'in' their packaging, it is also here that shoppers may try out new drinks and foods.

In light of the current focus on health in relation to food choice and consumption (Wansink & Chandon, 2014), a particularly interesting question relates to how packaging appearance can instill

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perceptions related to healthiness, and whether these transfer to taste. Surprisingly, very little research has addressed influences of visual packaging appearance on health perception. And although research has addressed the impact of nutrition labels and health claims on food choice (e.g., [Aschemann-Witzel, Maroscheck, & Hamm, 2013](#)) and taste ([Bialkova, Sasse, & Fenko, 2016](#); [Lee, Shimizu, Kniffin, & Wansink, 2013](#); [Lotz, Christandl, & Fetchenhauer, 2013](#); [Sörqvist et al., 2016](#)), studies addressing how more implicit visual packaging cues steer the extent to which shoppers evaluate a taste sample as healthy are non-existent.

In the current research, we will report on two field studies and one follow-up survey study. Field studies involved the same packaging variants presented to shoppers in a discount supermarket and a green supermarket respectively. Specifically, in both studies participants were exposed to either a 'healthy' or 'unhealthy' packaging appearance for a new (fictitious) yoghurt brand, and subsequently participated in a taste test. In a follow-up survey study, participants were randomly assigned to one of the two supermarket conditions and were exposed to either the healthy or unhealthy packaging variant. Before elaborating on the details of these studies, first we will discuss the key notions involved.

1.1. Packaging appearance and purchase setting

In recent years, a considerable body of research has shown that relatively subtle packaging cues such as color and shape may impact product evaluations and subsequent food experiences. For instance, [Becker et al. \(2011\)](#) showed that an angular (as opposed to rounded) yoghurt package shape not only affected the impression of the package, but that this impression also transferred to the actual taste, such that the yoghurt was perceived as having a more intense, strong taste when associated with the angular (as opposed to the rounded) package. Apart from visual factors, haptic sensations related to touch and exploration of cups or plateware from which foods are consumed may also alter food experience ([Biggs, Juravle, & Spence, 2016](#); [Schifferstein, 2009](#)). These findings testify to the importance of packaging design elements, and show that impressions from one sense modality (e.g., visually perceiving something as intense or strong) may transfer to another (e.g., evaluating taste as intense or strong), a phenomenon referred to as cross-modal correspondence ([Schifferstein & Spence, 2008](#)).

Surprisingly, experimental studies addressing effects of implicit visual design factors (as compared to explicit textual cues such as claims and nutrition labels) on evaluations of product healthiness are sparse although aspects such as color and shape are frequently referred to and experimented with as witnessed by redesigns and new product introductions. With respect to color for instance, companies such as McDonalds and Coca Cola (i.e., Coca-Cola life) replaced their 'red' with 'green', suggestive of a more natural and healthy image. Such practice is in line with research addressing color associations triggered by warm (e.g., red, yellow) versus cool (e.g., green, blue) hues. Whereas the former trigger associations with excitement (high arousal), the latter connote calm and relaxation (low arousal; [Valdez & Mehrabian, 1994](#); [Van Rompay, Tanja-Dijkstra, Verhoeven, & Van Es, 2012](#)), and may be more readily perceived as natural and healthy. Hence in current research, this color dimension was applied to design a 'healthy' (low-arousal colors) versus 'unhealthy' (high-arousal colors) packaging appearance.

Similarly to how a package may steer subsequent food experiences, the same may hold for the larger 'container' which is the purchase environment in which a package figures. In line with this notion, research in retailing shows that aspects such as scent, sound, and color may influence shopper experiences ([Spence et al., 2014a](#); [Turley & Milliman, 2000](#)). For instance, a classic study by [North, Hargreaves, and McKendrick \(1997\)](#) showed that shoppers were more likely to purchase products compatible with the

music being played. Specifically, they purchased more French wines when French music was played and more German wines when German songs were played. Findings from priming studies likewise suggest that people behave in line with meanings activated by the (store) environment. For instance, [Holland, Hendriks, and Aarts \(2005\)](#) showed that the mere exposure to the scent of all-purpose cleaner caused participants to keep their direct environment clean during an eating task. These findings show that the environmental setting may connote a certain ambience through factors such as scent, sound, and color, which sets the stage for subsequent evaluations and behaviors.

In line with research testifying to the importance of a match between environment and behavior, [Piqueras-Fiszman and Jaeger \(2014\)](#) recently showed that emotion associations are more positive when the eating occasion is appropriate (e.g., eating ice-cream outdoors with friends on a sunny day compared to eating ice-cream with a small group of relative strangers indoors). Likewise, a recent study by [García-Segovia, Harrington, and Seo \(2015\)](#) showed that people experience food intake as more positive when consumed in an appropriate and realistic context. These findings suggest that a match between the product and the environment heightens product evaluation. In sum, it could be expected that shoppers in a 'green' retail setting more readily evaluate foods as 'healthy' in appearance and taste (especially when packaging design connotes healthiness and thus is congruent with the 'green' environment), compared to shoppers in a 'discount' environment where focus is on price rather than food healthiness.

On the other hand, it might also be the case that shoppers in a 'green' environment are more sceptical and aware of persuasive attempts of food companies to instill an image of healthiness. For instance, [Aschemann-Witzel et al. \(2013\)](#) showed that nutrition and health claims are more effective for occasional 'organic' food buyers compared to more outspoken 'organic' buyers, who are more sceptical about health-related information on products. Thus, from this perspective, shoppers in a green environment might be less susceptible to product packaging cues.

In order to test these alternative hypotheses, two field studies were conducted in which shoppers from two supermarkets varying in 'green' image (i.e., ALDI versus EKOPLAZA) took part in a taste sampling test of a (fictitious) yoghurt brand displayed in either a healthy or unhealthy packaging appearance.

2. Study 1

2.1. Objective

Study 1 aims to explore the influence of a healthy versus unhealthy packaging appearance at a discount supermarket in the Netherlands. To this end, a unifactorial (packaging appearance: healthy versus unhealthy) between-subject design was used.

2.2. Stimuli and design

In order to arrive at the stimuli for both studies, twelve persons were shown color samples varying in color hue, including both high (red/yellow) and low (green/blue) arousal colors. Additionally (to further enhance realism of the packaging designs), they were presented with material texture samples and asked to indicate which they considered most appropriate for a healthy dairy product. Based on their responses (confirming the relatedness between health impressions and the color arousal dimension), two packaging designs were created using Adobe Photoshop (See [Fig. 1](#)). To ensure the effectiveness of the design manipulation, 16 participants rated both variants on perceived healthiness. An analysis of variance confirmed that the (low color arousal) healthy packaging

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