How to Talk Healthy: Does communicating ingredients or nutritional properties influence the perception of product healthiness?

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Abstract

Maintaining a healthy diet is one of the fundamental steps toward achieving a healthy lifestyle and a balanced diet. However, the concept of healthiness is subjective. It varies from person to person and is influenced by individual preferences and needs. Research indicates that the perception of a product's healthiness is not solely based on its nutritional content but encompasses various other dimensions, including naturalness, freshness, and emotional value. Despite this, the most effective method of communicating a product's healthiness remains unclear. This study aims to identify the most effective strategies for conveying the healthfulness of a food product through its packaging communication. By applying the Dual Coding and the Construal Level theories, it examines how the emphasis on product ingredients or on their nutritional properties influences the perception of healthiness. To achieve this objective, the research will incorporate three main studies, each of which includes multiple experiments. The findings of this research will contribute to the literature on consumer perception from a theoretical perspective by identifying the most effective communication methods. Practically, the results will provide valuable insights for market actors, aiding in the development of effective communication strategies to convey the message of healthfulness.

Keywords: product's healthiness, packaging, nutrition, hero ingredient, Dual Coding Theory, Construal Level Theory

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1. Introduction

In recent years, there has been a notable increase in the importance placed on health, prevention and self-care (WHO, 2022). Healthiness is a subjective and personal concept that varies from individual to individual (Liñán et al., 2019), being influenced by personal needs and preferences (Lusk, 2019). In accordance with the World Health Organization (WHO) definition, health can be defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".
Several studies have demonstrated that the diet is an effective means of maintaining good health, reducing the risk of contracting non-communicable diseases (NCD), including cardiovascular disease, type 2 diabetes and some cancers (Archundia Herrera et al., 2017; Chen et al., 2023; Mente et al., 2023). A healthy and balance diet can be defined as a pattern of food intake that has beneficial effects on health, including the consumption of fresh fruit, vegetables, nuts and whole grains, and that avoids foods that have harmful effects, including processed foods, sugary drinks, trans and saturated fats, added salt and sugar (WHO, 2022).
Despite the growing importance of health, many consumers find it difficult to maintain a balanced and healthy diet. Studies conducted in various countries have shown an overconsumption of unhealthy foods and a decrease in the intake of beneficial foods (WHO, 2022). This trend is contributing to the rise in obesity rates, with the consequent reduction in life expectancy and increase in healthcare costs (WHO, 2022).
Providing more precise health-related information can enhance individuals' willingness to make healthier dietary choices (Segovia et al., 2020). In this regard, food packaging serves as important communication channel (Nancarrow et al., 1998) providing a variety of information, including details about the food's composition and its nutritional labeling (Alamri et al., 2021). Nevertheless, the retrieval of information from the packaging may necessitate a greater degree of effort (Lugli, 2015). Reducing the searching costs can increase the likelihood of consumers choosing healthier products (Zhu et al., 2016). Claims, for example, are an important means of summarising information. They appear on the packaging as a statement, representation or declaration in the labeling, advertising or presentation of a food product to inform consumers and help them identify the specific health benefits of consuming these products, thus encouraging them to make appropriate food choices (Domínguez Díaz et al., 2020; Hasler, 2008).
The impact of different food claims on consumers perception and evaluation has been extensively studied in the literature, including claims about fat content (Bialkova et al., 2016; Chan et al., 2005; Roefs & Jansen, 2004), sugar content (Bialkova et al., 2016; Mai, 2014), calories (Andrews et al., 2009; Van Kleef et al., 2008), fiber content (Gębski et al., 2019), salt content (de-Magistris & Lopéz-Galán, 2016; Gębski et al., 2019), probiotics (Kolady et al., 2019). However, the research has focused on the analysis of single claims or the comparison of opposing claims, e.g. "rich in" *vs* "free from" but did not include a comparison between the nutritional properties associated with the ingredients.
Consequently, the objective of the study is to ascertain whether the ingredient itself, its nutritional properties, or the combination of these two elements affects consumer perception. The paper is organized as follows. The next section offers a review of the literature on the topic of product healthiness and the tools to best convey it. Section 3 explains the research protocol, while the concluding section defines the expected results and possible managerial implications.

2. Theoretical background and research objective

The concept of product healthiness is not contingent on the nutritional content of the product alone. The extant literature defines two distinct classifications. The first comprises three interdependent dimensions: product origin, degree of product conservation, and degree of product processing (Lusk, 2019). Instead, the second classification presents four dimensions: nutritional content, naturalness (Roman et al., 2017), freshness (Albrecht & Smithers, 2018) and emotional value (Puska & Luomala, 2016). The literature does not provide a single, one-dimensional definition of the concept of healthiness,

which can therefore be conveyed in various ways and communicated through multiple aspects of a product, starting with its ingredients and nutritional properties. Ingredients, in particular, represent a crucial piece of information, playing a fundamental role in shaping consumer preferences and perceptions of healthfulness (Hartmann et al., 2018; Acton & Hammond, 2018; Annunziata et al., 2015). Among the various ingredients in a product, some stand out for their importance because they are those that, more than others, represent some essential characteristics of the product, such as nutritional benefits. The latter will be referred to with the term "hero ingredient", the one that provides substantial benefits, which in turn confers advantages to the consumer health. Similarly, the nutritional properties derived from the hero ingredient serve as another important source of information that shapes the consumer's perception of the product (Rizk & Treat, 2015; Rebouças et al., 2017). Nutritional properties encompass the attributes of food that influence its nutritional value and associated health benefits (Wang et al., 2022).

Literature has shown that both ingredients and nutritional properties influence the perceived healthiness of the product (Hartmann et al., 2018; Acton & Hammond, 2018; Rizk & Treat, 2015). Nevertheless, there is a lack of investigation into which of the two concepts is a better vehicle for the concept of healthiness. In order to address this research gap, the study seeks to answer the following research question:

RQ1: What best conveys the concept of healthiness? The ingredient or the nutritional property associated with it?

Among the ingredients that bring substantial benefits to the product, the research focuses on whole-grain flour, oatmeal and blueberries. Each of these ingredients benefits the consumer's health through their nutritional properties.

Specifically, whole-grain flour is rich in fiber and the scientific evidence supports the assertion that foods rich in fiber have beneficial effects on human health (Dreher, 1999). The ingestion of 25-35 grams of fiber per day has been demonstrated to inhibit the development of conditions such as colorectal cancer, diabetes, and obesity (Dreher, 1999). There is considerable interest among consumers in the intake of dietary fiber. Indeed, research has demonstrated that the inclusion of the claim "source of dietary fiber" increases interest in the product and encourages its purchase (Gębski et al., 2019).

With regard to oatmeal, it has been demonstrated to confer benefits to the gastrointestinal system as a consequence of its associated nutritional properties, which include the presence of prebiotics (Precup et al., 2022; Gibson et al., 2010). Some retailers have introduced a product shelf that displays the wording "with prebiotics" on the packaging, followed by the claim "that promotes the balance of the intestinal flora" (Coop Italia, 2022).

Additionally, blueberries are a rich source of antioxidants, which have been the subject of numerous scientific studies that have underscored their significance in the prevention of various diseases. A diet rich in antioxidants has been demonstrated to play a vital role in the prevention of cardiovascular diseases (Fuhrman et al., 1995), tumors (Wargovich, 2000) and neurodegenerative diseases, including Parkinson's disease and Alzheimer's disease (Joseph et al., 1999). Moreover, antioxidants are renowned for their anti-inflammatory properties (Joseph et al., 1999) and their capacity to address concerns associated with cellular and skin aging (Prior & Cao, 2000). Finally, Markosyan et al. (2009) found that the claim related to antioxidants has a positive effect on consumers' willingness to pay.

The role of ingredients and nutritional properties in healthiness perception has been widely examined in the literature (Pires et al., 2019; Polizer Rocha et al., 2018; Rizk & Treat, 2015; Shan et al., 2017). Given the pivotal role of packaging in conveying product information, including ingredients and nutritional properties in various formats (Alamri et al., 2021; Mirabellas & Gàmbaro, 2018), this study seeks to examine the optimal approach to associating an ingredient with its corresponding nutritional property on packaging in order to understand the impact of such associations on consumer perception.

The relationship between text and image as a communication strategy through packaging has been the subject of considerable research in the academic literature (e.g. Mehlhose & Risius, 2023). Miraballes

and Gámbaro (2018) demonstrated that in the context of food products, the perception of healthiness is enhanced when text is accompanied by an image, and particularly when the text is informative.
Explaining the combined positive effect of images and text is the Paivio's Dual Coding Theory (DCT) (1986). According to this theory, individuals process verbal and nonverbal information through two distinct but interconnected mental systems. When these systems are activated simultaneously, the ability to remember information increases. The DCT has been employed in studies examining the impact of diverse communication channels through packaging (Homer & Gauntt, 1992; Lwin et al., 2010; Zerbini et al., 2018). However, the application of this theory to investigate the combined influence of an ingredient and its associated nutritional properties, conveyed through both visual and textual elements, remains poorly explored.
Based on this theory, the objective of the research is to ascertain whether there is a combined effect of the nutritional properties conveyed through text and the hero ingredient conveyed through image on consumer perception. More formally:

RQ2: How does the association between the nutritional property (conveyed with text) and the ingredient (conveyed with image) impact consumer perception?

Another way to associate the hero ingredient with its nutritional property is to use different text sizes. In the literature, some studies have focused on the spatial distance of stimuli in order to gain insight into its effect on consumer decision-making (Vergura & Luceri, 2018; Dhar & Kim, 2007; Kardes et al., 2006; Trope et al., 2007). The theory that elucidates how stimuli (events or objects) are perceived and interpreted based on their 'psychological distance' is termed Construal Level Theory (CLT) (Trope & Liberman, 2012). The concept of psychological distance encompasses a number of dimensions, including temporal, social, spatial and certainty/uncertainty distance (Trope & Liberman, 2012). Of these, the spatial dimension has been identified as a key factor influencing consumer perception and interpretation of packaging information, with the potential to enhance the effectiveness of message conveyance based on psychological distance (Eyal et al., 2009). The present study, aims to examine whether psychological spatial distance, as operationalized through property-ingredient associations with different textual dimensions, leads to variations in consumer perception.

RQ 3: Does the size of the text in which the hero ingredient and the nutritional property are presented affect consumer perception?

3. Study protocol

To address the research questions posed, the study protocol encompasses several meticulously structured steps, starting with a pre-test phase, followed by three studies incorporating a series of experiments. As this project is ongoing, the pre-test phase and subsequent stages are scheduled for the coming months.
The preliminary phase of the study was designed to identify three levels of perceived healthiness, characterized by three different levels (high, medium, low) and the specific products to be tested. The research was limited to the domain of breakfast foods, with an examination of three product categories - cookies, cereals, and snacks.

Study 1
The objective of Study 1 is to test whether the ingredient or its nutritional property best conveys the perceived healthiness of the product. To this end, two experimental studies will be conducted. Study 1a will employ a 3x3 design to compare three hero ingredients (e.g. whole-grain flour, oatmeal, and blueberries) across the three product categories with varying degrees of perceived healthiness. Study 1b will compare three nutritional properties (e.g. fibers, prebiotics, and antioxidants), while maintaining the same product categories.

Study 2

Based on DCT, the second research question will be answered using a 3x3 design to compare the associations between nutritional properties (expressed via text) and ingredients (via images) in the same three product categories as in previous studies.

Study 3
To answer the third research question, based on the theoretical background of the CLT, three studies will be conducted by associating the hero ingredient and nutritional properties with different text size. To this end, three 3x3 experimental designs will be conducted to text different combinations of psychological spatial distance.

In order to respond to the research questions, consumer perception and evaluation will be assessed using scales that have been extensively validated in the existing literature. Latent variables such as perceived healthiness, perceived naturalness expected tastiness, health benefits associated with the property/ingredient, and purchase intention will be assessed. The data will be collected via an online survey. Each of the experiments described above will comprise nine experimental groups; participants will be distributed randomly and equally among the experimental conditions.

4. Expected results

In recent years, there has been a significant increase in consumer awareness regarding health, well-being, and preventive care. This heightened focus is also reflected in purchasing decisions, with consumers increasingly prioritizing the healthiness of products—a quality often communicated by brands through a variety of information channels and strategies. However, consumers frequently struggle with the overwhelming volume of information they receive, becoming victims of information overload, which complicates their decision-making processes. Numerous studies have examined the impact of health claims, such as information on calorie content, fats, sugars, and ingredients, on consumer behavior and their perception of a product's healthiness. Despite the extensive existing literature on this topic, the question of whether the perceived healthiness of a food product is influenced by the presence of a specific ingredient, rather than by its nutritional properties, remains underexplored. Furthermore, the study aims to understand the effect of the different combination of these two elements conveyed through packaging on consumer perception.
This research intends to contribute to the existing literature on product healthiness from two distinct perspectives. Firstly, this work pursues to enhance the theoretical understanding of product healthiness perception. The study delves into the role of hero ingredients in conjunction with the nutritional components of a product and seeks to test the application of Dual Coding Theory and Construal Level Theory within the context of product packaging.
Secondly, from a practical standpoint, the research intends to offer valuable insights to stakeholders in the food industry by identifying which elements of a product – be it ingredients, nutritional properties, or a combination of both – should be emphasized, and determining the most effective means of doing so, whether through images, text, or a combination of both. The study's findings could provide crucial information for developing effective communication strategies, offering practical solutions to simplify consumer decision-making while addressing their increasing concern with the healthfulness of food.

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