

# Overcoming consumption barriers for conscious food products: The role of vivid sensory imagery

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# **Overcoming consumption barriers for conscious food products: The role of vivid sensory imagery.**

## **Abstract:**

Despite of their rising importance, concepts such as conscious consumption face major challenges. Besides other factors, lay theories attributing lower sensory pleasure to conscious products represent potential consumption barriers. Literature provides reason to assume that sensory imagery could be a concept with high relevance for conscious consumption. However, up to date only scarce work investigates the role of sensory imagery in forming or removing consumption barriers and extant studies come to contradictory conclusions. The present paper focuses on understanding and combating lay theory based consumption barriers towards conscious (sustainable, organic and regional) food products. We draw on literature on sensory imagery and the availability-valence hypothesis and report an experimental study, involving sensory testing and VR technology, investigating the effects of vividness of sensory imagery on consumers' pre- and post-consumption responses and behavioral intentions.

*Keywords: Conscious consumption, sustainable consumption, consumption barriers*

*Track: Social Responsibility & Ethics*

## **1 Conscious consumption – concepts and challenges**

The tremendous increase in consumers' consumption of goods and services over the last decade came along with severe damages to the environment, such as increased environmental pollution, global warming, a decline in flora and fauna, and a depletion of natural resources (Chen & Chai, 2010). This realization and the accompanying concern towards the society and environment favored the emergence of concepts of social / behavioral change and conscious consumption, bringing forth the idea of consumers who take into account the public consequences of their private consumption or who attempt to use their purchasing power to affect in social change (Webster, 1975).

Individualistic concepts of social change base upon individual attitudes and values and strive after behavioral changes through changes of consciousness. The corresponding transformation narrative is that "...many small changes in individual actions will add up to bigger changes in overall resource consumption" (Watson, 2017), whereby the needed rethinking is not only about individual consumption decisions or given needs that are to be "sustainably" satisfied, but the social production of demand and the creation of needs and infrastructures (Goulden et al., 2014).

As a consequence of this development, concepts such as sustainable development, eco innovation, and green consumption attracted attention of practitioners and scholars. The concept of sustainable development bases upon the desire to satisfy the needs of the present without risking that future generations might not be able to fulfill their needs (Hauff, 1987) and "emphasizes the need to promote sustainability and advocates that form of development which minimizes negative impact on the environment and society" (Joshi & Rahman, 2015). The concept of eco innovation refers to the incorporation of sustainability practices in all stages of the creation of goods and services (Veleva & Ellenbecker, 2001). Green consumption is understood as environmentally responsible consumption, with consumers considering the environmental impact of purchasing, consuming and disposing products or services (Moisander, 2007).

After comprehensive reviews of extant literature, scholars conclude that there is a lack of knowledge about the reasoning and justifications regarding conscious consumption behavior, particularly, why consumers would or would not act consciously in certain consumption situations (Belk, Devinney, and Eckhardt, 2005). Moreover, they emphasize that "what is particularly apparent is the extent of disconnect between the issues consumers claim to care about when surveyed and their purchasing behavior" (Belk, Devinney, and Eckhardt, 2005, p. 276).

Indeed, the idea of conscious consumption and accompanying concepts and trends entail major challenges arising at the interface between product development, marketing, consumer science and sensory science, as several barriers towards purchase and consumption of conscious products exist. While factors such as low availability, high prices and the lack of consumer trust in the respective products have been in the focus of scientific attention and are regarded as major barriers towards purchase of such products (Joshi & Rahman, 2015), another explanatory approach for prevailing consumption barriers refers to the existence of so-called lay theories, attributing, for instance, lower sensory pleasure and lower effectiveness to conscious products.

Moreover, extant literature criticizes that the concentration on conscious consumption often lets forget that it is, above all, the non-demonstrative routine consumption, that can be associated with high environmental consumption (Goulden et al., 2014). Resting upon this consideration, the importance of actions addressing healthy and environmentally friendly food behaviors is increasingly recognized, though researchers state that “it is not yet clear which actions are most suitable to support consumers to adopt both behaviours concurrently” (Hoek, Pearson, James, Lawrence, and Friel, 2017).

Against this background, the present paper focuses on understanding and combating lay theory based consumption barriers towards conscious food products as examples for non-demonstrative routine consumption. Due to the prevalent lack of consistency in the various terminologies and definitions that have been offered about the different components of conscious consumption (Roux & Nantel, 2009), the work at hand focuses on three sub-aspects of conscious consumption, namely purchase behaviors for *sustainable*, *organic* and *regional* food products.

## **2 Barriers towards conscious food consumption: the role of sensory appeal**

Though up to 65% of consumers report intentions to buy purpose-driven brands that advocate sustainability, only about 26% actually do so (White, Hardisty, and Habib, 2019). While several factors potentially representing consumption barriers have already received scientific attention, only little work focuses on the role of the perceived sensory appeal of conscious products in forming or removing consumption barriers and extant studies come to contradictory conclusions.

It is acknowledged that consumers tend to categorize products as either healthy or unhealthy based on the products' attributes (Rozin, Ashmore, and Markwith, 1996). What makes this tendency worthy of note in the context of conscious consumption is that

consumers tend to associate sustainability with higher perceived health (Verain, Sijtsema, and Antonides, 2016). This expected positive correlation between health and sustainability might be due to the fact that consumers “often encounter health and sustainability together in products” (Cho & Baskin, 2018). Literature instances the example of vegetarian meals, which are considered to be, both, healthy and sustainable, as compared to non-vegetarian meals, which are generally assumed to be unhealthy and unsustainable (Kareklas, Carlson, and Muehling, 2014).

In the same vein as sustainable food items, also organic and regional food is associated with higher healthiness than conventional food by remarkable percentages of consumers. Studies indicate that up to 87 % of consumers perceive organic food to be healthier than conventional food, and 75 % believe that organic food is more sustainable than conventional food (Petrescu & Petrescu-Mag, 2015). Similarly, regional food, i. e. food growing in the surrounding region, is believed to be healthier, fresher and more sustainable than conventional food (Darby, Batte, Ernst, and Roe, 2006; Henseleit, Kubitzki, and Teuber, 2007).

Empirical work proposes that if consumers encounter different product attributes together over time, the associations between them may become automatic, such that, if provided with one attribute, consumers may automatically predict a positive correlation on the other attribute (Bargh & Chartrand, 1999), thereby often reinforcing consumers' own biases (Cho & Baskin, 2018). Following this train of thought, consumers' strong association of sustainable, organic and regional food products with healthiness may entail opportunities, but also barriers towards the consumption of conscious food products:

On the one hand, some studies provide reason to assume that, for instance, organic production may be associated with better taste, and that only if taste expectations are not met, this might raise potential barriers to consumers' repurchase intentions (Grunert, Bredahl, and Brunsø, 2004). Similarly, scholars suggest that consuming green (vs. conventional) products should result in increased enjoyment of the accompanying consumption experience. The proposed effect is referred to as the greenconsumption effect (Tezer & Bodur, 2019).

However, the strong association of sustainable, organic and regional products with healthiness is acknowledged to be linked to the sensory perception of these products, thereby potentially impairing their inferred sensory qualities and reducing their enjoyment during actual consumption (Raghunathan, Naylor, and Hoyer, 2006). While counterexamples exist (see, for instance, Huang & Wu, 2016, Mai & Hoffmann, 2015), it remains widely unclear

which factors may be supportive or hindering for the perception of conscious products as sensory appealing and enjoyable.

Thus, the present research elaborates on how “consuming well” (in the sense of sustainable, organic, regional) and sensory pleasure can become more interconnected rather than being perceived as distinct constructs (Huang & Wu, 2016).

### **3 Sensory information and the role of vivid sensory imagery**

Sustainability may still be regarded as an abstract concept to many consumers (Grunert, Hieke, and Wills, 2014); moreover, healthy and environmentally friendly food behaviours are considered less convenient than conventional routines, as they require physical and mental effort to change current habits (Brunner, Van der Horst, and Siegrist, 2010). Thus, respective literature calls for “different interventions geared to break dietary habits” (Hoek, 2017) and emphasizes that “efforts to change habitual behaviours will have more impact if they include changes in the situational food buying and consumption context, as these are shown to be most effective” (Hoek, Pearson, James, Lawrence, and Friel, 2017; Van't Riet, Sijtsema, Dagevos, and De Bruijn, 2011). Moreover, scholars agree that the “translation of [...] behavioural principles into consumer-friendly communication messages needs to be specified and researched further” (Hoek, 2017; Michie, van Stralen, & West, 2011).

It is acknowledged, that sensory properties play a vital role with regards to product selection; however, they represent intrinsic attributes and as such they may not be assessed prior to purchase. Consequently, consumers lack reliable information about the sensory product experience during the stage of purchase, wherefore extrinsic cues (i.e., cues that are not part of the product itself) guide product selection (Hoppert et al., 2014). Product attributes furthermore emerged as major drivers for conscious purchase decisions in extant literature (Joshi & Rahman, 2015). Moreover, not only expectations, but also sensory perception may be affected by information, however, the effects of externally provided information on perception have been widely underresearched (Krishna, 2012).

In literature, however, it remains unclear whether and how the provision of sensory information (i.e., information regarding sensory product attributes) and the evocation of sensory imagery may assist in reducing consumption barriers for conscious products. While some studies point to the risk of communicating sensory information by stating that “even if it fails at changing the expected benefits of consumption, marketing communication can influence the importance of these benefits, for example, by making taste a more important

goal than health” (Chandon & Wansink, 2012), other publications highlight that “focusing on sensory pleasure can make people happier and willing to spend more for less food, a triple win for public health, consumers and businesses alike” (Cornil & Chandon, 2016). However, sensory pleasure is underused to promote conscious eating behaviors, wherefore only little is known about the potential of sensory pleasure-oriented messages (Trudel-Guy et al., 2019) in the context of conscious consumption.

Building on the availability-valence hypothesis, the vividness of sensory information should be crucial in affecting attitudinal judgments, as the vividness of information presented in a message influences the extent to which people will engage in cognitive elaboration (Kisielius & Sternthal, 1986). Moreover, “evoking a vivid image produces a life-like activity of ‘seeing’, ‘hearing’, ‘tasting’, ‘smelling’, ‘touching’ or feeling something; mental imagery is a [...] process that resembles, but is not identical to, perception with action” (Marks, 2019). Against the background that imagery and activity are produced by similar neural processes in the brain, we consider vivid sensory imagery a concept with high potential relevance to conscious consumption. Indeed, extant research indicates that vivid imagery can serve as a key element in current food induction and, as such, determine the intensity of food cravings (Tiggemann & Kemps, 2006).

Resting upon these considerations and the few contradictory findings, we draw on literature on sensory imagery and the availability-valence hypothesis and suggest that sensory information, particularly if presented in ways encouraging vivid sensory imagery, will assist in the reduction of consumption barriers for conscious (sustainable, organic and regional) food products. Thus, we put forward the following hypotheses:

H1: The communication of sensory information may affect consumers’ pre- and post-consumption responses as well as behavioral intentions towards conscious (sustainable, organic, regional) food products by evoking sensory imagery.

H2: Higher vividness of the evoked sensory imagery will result in more favorable consumer responses, while decreases in vividness will reduce this positive effect.

#### **4 Study design**

In order to test our hypotheses, we conduct an experimental study ( $n = 120$ ) in the sensory lab of a Central European University. The experiment is conceptualized as a mixed design study, whereby the *degree of stimulated sensory imagery* (control group without stimulation vs. verbally presented sensory information vs. vivid sensory imagery) serves as

between-subjects factor and the *type of conscious product* (sustainable vs. organic vs. regional) as within-subjects factor. Consumer responses before (sensory expectations, expected liking, anticipated consumption pleasure, anticipated emotions, pre-consumption behavioral intentions) and after tasting (sensory perception, perceived liking, anticipated consumption pleasure, post-consumption behavioral intentions) serve as dependent measures.

As visual images tend to be experienced as most vivid compared to other sensory modalities (Schifferstein, 2008), vividness of sensory imagery is manipulated using VR technology: Two HTC Vive Pro Eye devices are employed to communicate sensory information in the “vivid sensory imagery” condition. The Plymouth Sensory Imagery Questionnaire (Andrade, May, Deeprose, Baugh, and Ganis, 2013) is used to assess the subjective degree of vividness of mental imagery.

As unprocessed food products are subject to manifold interactions with the environment during their growth, harvest, and storage, wherefore their properties and quality characteristics change over time (Tscheuschner, 1996), thus impairing their experimental comparability, we decide on a processed food product, namely corn sticks with apple flavor of the brand “Rosenfellner Mühle”. The selection of this concrete product bases upon several considerations: Corn sticks may easily be portioned and served for sensory testing, do neither represent an extreme example for sensory pleasure nor healthiness, and may plausibly be labeled either as a sustainable, organic or regional product.

Due to the effortful procedure involving sensory testing and Virtual Reality technology, data collection is still work in progress and will be finished in January, 2020.

## **5 General discussion and implications for further research**

The implications of conscious consumption represent an immensely complex topic with a plurality of open questions and manifold promising avenues of research. A carefully considered interplay between sensory science and marketing should possess the ability of making conscious products more appealing to consumers. However, it remains widely unclear which factors may be supportive or hindering for the perception of conscious products as appealing and enjoyable. The present research, located at the interface between marketing, sensory science and VR, aims to contribute to this young research field by investigating how messages evoking vivid sensory imagery can assist in the reduction of consumption barriers for conscious (sustainable, organic and regional) food products.

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