



Looked at and Bought? How Extrinsic and Intrinsic Product Characteristics Influence Food Purchases

5

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Abstract

With an average product range of 40,000 items per grocery store and only a few seconds for consumers to make a decision at the point of sale, it is essential that food manufacturers provide meaningful and fast information. Legally regulated labelling elements for food range from ingredient, nutritional and quantity information to health and environmental claims. However, by using additional product attributes in a promotionally effective way, companies can succeed in drawing attention to their products and distinguishing themselves from competitors. This chapter shows how extrinsic and intrinsic product attributes are used to encourage consumers to buy food. Extrinsic attributes focus on aspects of packaging design (e.g., colour) and food advertising (e.g., sensory claims, product labels). With regard to intrinsic product characteristics, the appearance and taste of a food product play a particularly important role in influencing the consumer's decision to buy.

5.1 Importance of Product Characteristics in Food Shopping

Today's food sector is faced with an increasing competition due to saturated markets. Consequently, food manufacturers try to establish themselves in the market as well as remain competitive by developing new products (Combris et al. 2009). Despite all efforts of food manufacturers to successfully place their products in the retail market, the flop rate of

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launched products is 50–70% (Dijksterhuis 2016). Due to a saturation of markets with their seemingly unlimited variety of products, the biggest challenge for manufacturers is exactly how to entice consumers to buy their products. To meet this challenge, manufacturers need to know, above all, which characteristics are responsible for the success or failure of a product.

The decision for a food at the point of sale is made by the consumer in a very short time (Scheibehenne et al. 2007) – on the one hand on the basis of extrinsic product features (e.g., brand, packaging, label, price) and on the other hand on the basis of intrinsic product features (e.g., taste, appearance). When consumers purchase a food product for the first time, their decision is based on extrinsic attributes, as sensory perception of intrinsic product attributes is usually not possible (Irmak et al. 2011; Deng and Srinivasan 2013). When consumers have consumed a food product and make a repeat purchase, their memories of sensory perceptions of the product are incorporated into the decision-making process (Mai et al. 2016). The purchase decision is now mainly based on the actual perception of the product rather than only on expectations evoked by extrinsic product characteristics (Arvola et al. 1999; Hoegg and Alba 2007). Some studies show that extrinsic (e.g., label) and intrinsic (e.g., fat, sugar) product attributes can jointly influence actual taste experience (Johansen et al. 2010; Hoppert et al. 2012; Naylor et al. 2009; Irmak et al. 2011; Wansink and Park 2002). Most studies, however, examine either intrinsic or extrinsic product attributes and neglect such interactions (Symmank 2019; Hoffmann et al. 2020).

5.2 Classification of Product Characteristics for Foodstuffs

The following section serves as a brief explanation of what is meant by extrinsic and intrinsic product characteristics, in which form the consumer perceives them and in which research disciplines they are primarily anchored. In addition, packaging as an extrinsic characteristic and the appearance of the food as an intrinsic characteristic are explained in more detail, as they are the subject of the studies presented in this chapter.

5.2.1 Extrinsic Product Characteristics

Extrinsic characteristics of a food are externally visible characteristics that are not inherent to the product and therefore cannot be consumed. Consumers make their purchasing decisions on the basis of visible characteristics (e.g., brand, packaging, price, label, claim) in order to draw conclusions about the quality of the product (Akdeniz et al. 2013; Underwood et al. 2001). Extrinsic characteristics of food are therefore mostly the subject of research in the fields of economics, especially marketing, and focus mainly on what consumers can perceive visually (Grunert 2015; Hoffmann et al. 2020).

Extrinsic product features: Extrinsic product features are externally visible characteristics that the consumer can perceive visually.

Most foodstuffs are still sold packaged. In addition to its storage and transport function, **packaging** is of central importance as a means of information and communication. The element “packaging” is therefore sometimes also referred to as the fifth “P” of the marketing mix – alongside product, price, place and promotion (Kotler et al. 2007, p. 537). With the help of the packaging, interest in the product should be aroused, product characteristics communicated, trust created and a positive overall impression conveyed (Kotler et al. 2007, p. 538). An appealing packaging design makes it possible to draw the consumer’s attention to the product and thus distinguishes it from competing products (Stoll et al. 2008). This is particularly beneficial for homogeneous product categories as well as short-lived consumer goods, such as food (Underwood et al. 2001). The possibility of self-service at the point of sale has further reinforced this importance (Rettie and Brewer 2000). Consumers who have little product knowledge often use packaging as the exclusive source of information in their purchase decision process (Garber et al. 2000). Packaging consequently acts as a “silent salesperson” (Pilditch 1972) by evoking certain associations and influencing actual purchase behaviour.

5.2.2 Intrinsic Product Characteristics

Intrinsic product characteristics comprise all physical, nutritional and techno-functional properties of a food that have an impact on appearance, smell, taste and texture (Enneking et al. 2007). These intrinsic characteristics influence the sensory perception of the consumer with all senses (Grunert 2015). Intrinsic characteristics of foods are therefore mostly the subject of studies in the fields of food technology and nutritional sciences (Symmank 2019).

Intrinsic product features: Intrinsic product features have a physical impact on the product and can be perceived with all senses (sight, taste, smell, hearing, touch).

The **appearance of a food product** is usually the first sensory characteristic that can be detected at the point of sale. In addition to colour, this also includes shape, surface condition and visible texture properties. Visual appearance alone evokes product expectations, albeit often unconsciously, as it provides initial information about product quality (e.g., degree of ripeness), product characteristics (e.g., degree of roasting), taste (e.g., yellow desserts for vanilla taste, red fruits for fruity and ripe) (Derndorfer and Gruber 2017). However, product expectation evoked by the eye can deceive other senses. In one study, pink-coloured Chardonnay was rated by consumers as the most fruity, while red-coloured Chardonnay was rated as the wine with the most maturity and complexity (Derndorfer and Gruber 2017).

5.3 How Product Characteristics Control Food Perception

The following section presents studies in which elements of packaging design (e.g., colour) as well as food advertising (e.g., sensory claims, product labels) were varied as extrinsic product features. In the last part, the influence of the appearance of the food as an intrinsic feature (to be understood here as “natural packaging”) on the consumer’s expectation and perception is examined.

5.3.1 Packaging Colour as a Subtle Indication of ‘Healthier’ Foods

In order to meet the increasing health orientation of certain consumer groups, food manufacturers change packaging as an extrinsic, easily recognisable product feature, in addition to varying intrinsic product features (e.g., fat or sugar content). Unlike obvious cues about the health effects of food (e.g., nutritional information), packaging colour can influence purchasing behavior in subtle ways that consumers are not aware of. To exude health, the packaging of low-fat or low-sugar options are often designed in light colours (Karnal et al. 2016). People perceive pale colours as lighter – an association that is ultimately transferred to the product in the packaging. Time constraints at the supermarket shelf encourage consumers to use such readily available key cues to classify foods into prototypical categories such as “healthy” and “unhealthy.” Mai et al. (2016) investigated whether light colours actually create the impression in consumers to get an healthier option. In addition to the health impression, the researchers also investigated whether ‘light’, pale colours are also associated with taste losses (Fig. 5.1). After all, ripe, sweet fruits often have strong, dark colours in nature. Light-coloured packaging could thus – contrary to what was intended – have a negative influence on the purchase decision.

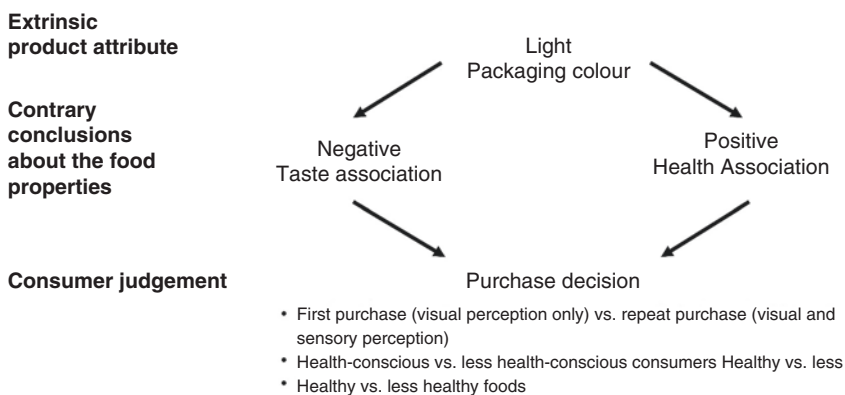


Fig. 5.1 Effect of light packaging colours on consumer judgement. (From Mai et al. 2016; courtesy of © Elsevier 2016. All Rights Reserved)

Six experiments revealed when (**first purchase vs. repeat purchase**) and in which consumer group (**level of health consciousness**) this side effect is to be expected (Mai et al. 2016). Across the series of studies, the type of product (**healthy vs. less healthy food**) and the packaging colour were also varied in brightness and hue to cover a corresponding range of commercially available foods.

Study 1 (n = 46) examined whether consumers intuitively attribute a higher health effect and at the same time a less intense taste to products in light-coloured packaging. In a computer-based experiment, the reaction time required by the subjects to assign pre-defined terms (e.g., healthy, unhealthy, tasty, bland) to different food packaging by pressing a key was measured. The response times clearly showed that subjects associated lighter packaging (pizza, chocolate, yogurt, cream cheese, potato chips, fruit bars, orange juice) with health significantly faster than the exact same packaging in darker shades (Mai et al. 2016). Having provided evidence that light packaging acts as an implicit (unconscious) health signal, Study 2 (n = 84), examined its influence in an actual decision-making situation. Subjects were either placed in a situation in which they felt particularly healthy or ate something tasty. Subsequently, they were allowed to select a cereal bar from a light or dark package. The subjects more often reached for the light-coloured packaging when the health goal was activated, whereas they more often took the darker packaging when they were looking for a tasty product (Mai et al. 2016). Study 3 (n = 179) answered the question of the role of sensory perception of the product as well as consumers' health consciousness when purchasing food. Subjects were assigned to two test conditions (light or dark packaging). In order to test differences depending on the **shopping situation**, a first purchase situation was simulated in a first step, in which the subjects only looked at the product and then made an evaluation regarding taste, health as well as purchase intention, among other things. In the second step (simulation of a repeat purchase), they tasted the product (the same cream cheese was in the light and the dark packaging) and again stated their taste and health assessment as well as their purchase intention. If the subjects only looked at the product externally (before tasting), as is typically the case at the supermarket shelf, the cream cheese in the darker packaging was rated as tastier and less healthy. In contrast, the cream cheese in the lighter packaging was rated as healthier. However, if the consumers were then able to convince themselves of the taste by tasting it in the second step, this dampened the simplistic conclusions about taste impairment. Unlike taste, however, the health effect can hardly be assessed by the consumer even after tasting. Therefore, light-coloured packaging creates intuitive health associations even after tasting. Regarding the **health consciousness of consumers**, it was found that especially less health conscious consumers are susceptible to adverse taste inferences. In contrast, positive health inferences occurred among consumers who were actively committed to promoting their health. Nevertheless, in both shopping situations, taste was the dominant driver of purchase intention (Mai et al. 2016).

Furthermore, it was assumed that the type of product determines the way in which light-coloured packaging is interpreted by the consumer. Particularly in the case of foods that are typically consumed for enjoyment (e.g., potato chips, Study 4, $n = 206$), adverse taste inferences were observed and this was especially the case for less health-conscious consumers (Mai et al. 2016). In the case of a product classified as rather healthy (e.g., fruit bars, Study 5, $n = 125$), light packaging primarily shaped health perceptions. More so, positive spillover effects on taste judgement were also observed among less health-conscious consumers (Mai et al. 2016). In conclusion, Study 6 ($n = 240$) demonstrated that colour-related health and taste inferences can vary not only between product categories, but also within a product category. Subjects rated orange juice, which was labeled as direct juice or juice from orange juice concentrate, to vary health inferences. The label was additionally designed in two colour (blue, green) and three colour saturations (light, medium, dark). Direct juice with a light green label triggered the strongest health association, whereas juice from orange juice concentrate with a dark blue label promised the most taste (Mai et al. 2016).

5.3.2 Sensory Claims to Support Food Advertising at the Point of Sale

Sensory claims are used in the marketing of foods to highlight particularly positive properties of a product in terms of appearance, taste and/or texture. Appealing sensory properties are among the most important selection criteria when purchasing food (Krishna 2012). According to a study by Swahn et al. (2012), naming sensory product attributes on the packaging or in an appropriate place for bulk products can lead to increased customer satisfaction and higher repurchase rates. Of great importance for the establishment of a product on the market is that the consumer expectations evoked by the naming of sensory properties match the perception felt after consumption. Against the background of a multisensory perception by the consumer, sensory claims can help to concretize uncertain expectations of the consumer and to increase the purchase intention.

Multisensory perception: Consumers perceive food multisensory, i.e., with several sensory impressions at the same time. Food manufacturers try to evoke an association between product and taste or texture in consumers with the help of images, visual elements or claims on packaging.

However, the use of sensory claims for marketing purposes has not been widespread to date and should be legally protected if used. International and national norms and standards (e.g., American Society for Testing and Materials International (ASTM)) form the basis for this. Legal regulations, such as the Health Claims Regulation or the Food Information Regulation (LMIV), are increasingly limiting companies' scope for

communication. In contrast to nutrition claims, health claims or risk claims (Europäische Kommission 2006), the naming of sensory product properties in Europe does not require official approval. However, the legal requirements to avoid misleading or deceiving consumers (Europäische Kommission 2002, 2011) must be taken into account.

Sensory Claims: Statements about sensory product properties that relate to the appearance, taste and/or texture of the food. They are used by food manufacturers to promote their products.

Sensory claims can be divided into hedonic and feature-related claims on the one hand, and comparative and non-comparative claims on the other (Fig. 5.2; ASTM 2016).

Feature-related claims refer to the perception of individual sensory characteristics. On a rye crispbread, for example, the texture is described as “thin and crispy baked” as well as “crunchy” and “airy,” and the taste as “savoury” and “with a mild rye flavour” (Fig. 5.3a). For mustard, a sensory claim such as “mild,” “extra hot” or “spicy-sweet” (Fig. 5.3b) is common to enable consumers to classify the product into different flavours. A sensory claim such as “The mild-spicy one” (Fig. 5.3c) is also frequently found in cheese. Sometimes hedonic and feature-related claims are also made within a claim, such as “deliciously tomatoey” (Symmank et al. 2019). **Hedonic claims**, on the other hand, are understood as the overall pleasure-oriented impression of a food. They thus provide overarching statements about appearance, texture as well as taste. For example, a snack bar is advertised as “Delicious Dairy Snack” (Fig. 5.3d) and an instant soup as “with delicious fried onions” (Fig. 5.3e).

Feature-related		Hedonic claim	
Comparative claim	Non-comparative claim	Comparative claim	Non-comparative claim
Claim of the same kind - Equivalent claim Ex: as crispy as... - Unsurpassed claim Ex: nothing is crispier Superior claim Ex: crisper than ..., even crisper	Ex: crispy, extra crispy	Claim of the same kind - Equivalent claim Ex: tastes as good as ... - Unsurpassed claim Ex: nothing tastes better ... Superior claim Ex: tastes better than ..., even better taste	Ex: excellent taste
Promoting a single sensory attribute		Promoting the overall sensory impression	

Fig. 5.2 Classification of sensory claims with declaration examples. (Based on Schneider-Häder et al. 2015)



Fig. 5.3 Examples of sensory claims on food packaging. (From Symmank et al. 2019; courtesy of © Springer Nature Switzerland AG 2019. All Rights Reserved)

Comparative claims serve to compare sensory characteristics or the overall sensory impression of products from different manufacturers or modified, existing products from one manufacturer. Comparative claims can be further subdivided into claims that emphasise similarity and claims that express superiority. Similar claims can be further divided into equivalent and unsurpassed claims. For example, the slogan “developed for CHILDREN’S taste” on an instant soup refers to the fact that the taste was developed especially the way children like it (Fig. 5.3f). The claim “Tastes like home-baked” on a packaged cake represents another variant of a comparative equivalent claim (Symmank et al. 2019). **Non-comparative claims**, which focus on the value-giving sensory properties of a product without comparing it with other products, are used more extensively.

In addition to a verbal description, visual elements such as pictures, symbols and the shape of the packaging also influence consumer expectations regarding the sensory perceptible product characteristics. For example, if a cracking breakfast cereal (crispiness shown as a process, Fig. 5.4a) or a broken biscuit (crispiness shown as a result, Fig. 5.4b) is depicted on a product packaging to visually underline the crispiness, the consumer can mentally associate this image with both the acoustically perceivable crispiness of the biscuit and the crispness that can be felt in the mouth (Symmank et al. 2019).

Alternatively, symbols can be used successfully if consumers associate them with a specific meaning (Labroo et al. 2008). Coffee manufacturers already use symbols to communicate the taste and aroma characteristics of coffee to consumers. For example, the number of coffee beans printed on a package reflect the intensity of the coffee (Fig. 5.5a). Similarly, the spiciness of a chilli sauce can be visualised by the number of chilli peppers (Fig. 5.5b) (Symmank et al. 2019).

The shape of symbols in combination with a sensory claim can also influence perception. Round shapes such as circles or ellipses have a purchase-enhancing effect on sweet

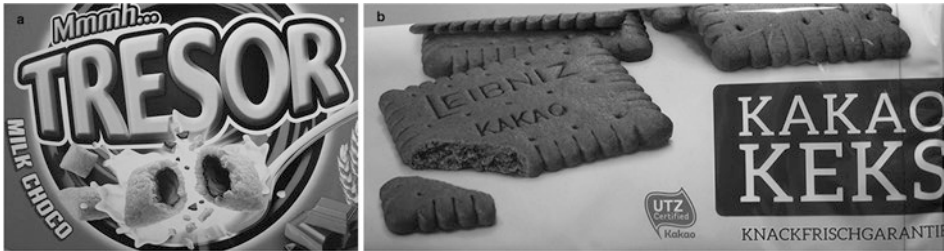


Fig. 5.4 Visual representation of crispness. (From Symmank et al. 2019; courtesy of © Springer Nature Switzerland AG 2019. All Rights Reserved)



Fig. 5.5 Symbolic representation of flavour and aroma properties. (From Symmank et al. 2019; courtesy of © Springer Nature Switzerland AG 2019. All Rights Reserved)

and creamy products (Liang et al. 2013; Spence 2012). For example, an appropriate sensory claim such as “fluffy light cream” on chocolate pudding should reinforce the consumer’s impression that the product is creamy and sweet (Liang et al. 2013; Schneider-Häder et al. 2015). It is also interesting to note here that the “calorie bomb” is linguistically “defused,” as the use of the words “fluffy light” and “creamy topping” come across as loose, diminutive and belittling to consumers. Angular shapes such as squares, rectangles, triangles or pentagrams are suitable for the targeted promotion of bitter, fizzy, sour and crunchy foods (Symmank et al. 2019).

5.3.3 Packaging Labels to Raise Awareness of Visually Suboptimal Foods

The visual impression that consumers get of food at the point of sale often decides on purchase and subsequent consumption. However, consumers significantly contribute to food waste. The amount of food waste could be reduced if consumers would more accept suboptimal foods. Industry and retail are already trying to encourage consumers to make more sustainable purchasing decisions. However, this information is not perceived by all consumers and not every type of information is suitable for positively influencing consumer behaviour.

Suboptimal food: Suboptimal food is food that deviates visually (e.g., shape, degree of ripeness, colour, packaging defects) or with regard to another sensory attribute (e.g., unexpected taste, loss of texture) from a product considered as optimal, or is close to the best-before date. Although they could be consumed without hesitation, these characteristics lead to the food not being purchased or being disposed of at home.



Fig. 5.6 Example screen overlays during the eye tracking experiment. (From Helmert et al. 2017; courtesy of © Elsevier 2017. All Rights Reserved)

Helmert et al. (2017) used an eye tracking experiment to investigate which messages and display variants can be used to draw consumers' attention to suboptimal foods. Thirty subjects consecutively viewed a total of 136 matrices with 8 food items each. These were matrices with only optimal products (Baseline) (Fig. 5.6a); matrices that included a visually suboptimal product (Suboptimal) (Fig. 5.6b); and matrices that included a visually suboptimal product with an additional message (Label) (Fig. 5.6c). The product messages related to either price ("Small in price") or taste ("Great in taste") and were in red or green. After having viewed each matrix, subjects were asked to answer either the question "Which food item would you leave in your shopping cart?" or "Which food item would you remove from your shopping cart?" After subjects signaled that they had looked carefully at the products, a blank screen appeared and one of the two questions was asked at random. Subjects now had to click on the part of the screen where the corresponding product was previously seen. The time until the first fixation, the viewing duration of the respective food products and the proportion of fixations in the area of the price tag were measured, as well as the influence of the messages and their design on the consumers' choice behavior.

The results show that consumers' attention can be drawn to suboptimal foods by designing specific messages. In this context, the colour of the message (here red vs. green) as well as the message itself (price vs. taste) play a subordinate role. In terms of consumer choice behavior, the data suggest that regardless of the colour of the message, only a price reduction is an effective way to positively influence the decision to purchase suboptimal foods.

5.3.4 Influence of the “Natural Packaging” of a Food on Consumer Judgement

Expectation and perception influence the acceptance of suboptimal foods and determine whether consumers buy, consume or dispose of a food. Using bananas of different degrees of ripeness as an example, Symmank et al. (2018) investigated to what extent purchase intention, overall acceptance as well as the acceptance of individual product characteristics are influenced by the visual change of the banana peel as “natural packaging” before consumption. Bananas can be classified into seven ripeness grades (RG): (1) completely green; (2) green with yellow stem base; (3) more green than yellow; (4) more yellow than green; (5) yellow with green stem base; (6) completely yellow; and (7) yellow with brown spots (Von Loesecke 1950). Bananas of RG7 were defined as suboptimal in this study because of their visual appearance, and those of RG5 were defined as visually perfect references (Fig. 5.7). Two hundred and thirty three subjects were divided into four groups. Two groups received an already peeled banana of RG5 and RG7, respectively, for immediate sensory evaluation. In each case, a further group received an unpeeled banana (RG5 or RG7) and initially documented their expectation and, after independent peeling and tasting, their sensory perception. The samples were assessed in terms of overall acceptance, purchase intention and individual intrinsic product characteristics (Fig. 5.7).

The results show that appearance has a significant influence on overall acceptance and purchase intention. Overall acceptance and purchase intention are significantly lower when expectation is based solely on viewing the unpeeled banana (Symmank et al. 2018). Consumers are more likely to purchase yellowish-green bananas rather than bananas with brown spots. However, this result is not surprising considering that bananas are usually stored at home for some time after purchase. After consumption, on the other hand, there is no difference in overall acceptance between RG5 and RG7. However, a significant difference in (re)purchase intention can also be observed after consumption.

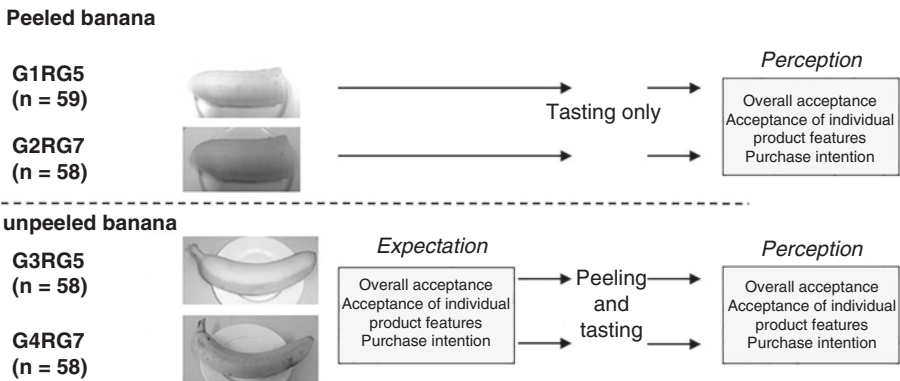


Fig. 5.7 Experimental design (G 1–G 4: study groups, RG: maturity level, n: sample size). (From Symmank et al. 2018; courtesy of © Elsevier 2018. All Rights Reserved)

This result shows that sensory perception can positively influence overall acceptance, but (re)purchase intention of visually suboptimal bananas is affected by the negative appearance even after consumption. Regarding intrinsic product characteristics, it is evident that the appearance of the banana influences expectations as well as the actual perception of the food product. Peeled bananas of RG5 are perceived as not sweet enough or banana-like. However, if the subjects see the peel beforehand, this effect does not occur in either the expectation or the perception. For the peeled bananas of RG7, no product characteristics were identified that negatively influence the overall acceptance. However, when subjects initially consider the peel in RG7, the bananas are expected to be too sweet, too banana-like, and too low in firmness. After consumption, they are only rated as too low in firmness.

5.4 Implications for Business Practice

From the perspective of food manufacturers or wholesalers and retailers, it is crucial to understand how extrinsic and intrinsic product characteristics influence consumer purchasing behavior. With regard to **packaging colour**, it seems plausible that light-coloured packaging triggers adverse taste associations especially when consumers are unable to assess sensory product attributes (i.e., tasting is not possible). Especially at the point-of-sale and particularly when a product is purchased for the first time, consumer judgement is primarily based on visual perception processes and not on sensory taste perception. In this situation, consumers are forced to form their judgement based on the packaging as a visual stimulus. In contrast, recourse to such key heuristic stimuli is less likely to occur when consumers are buying the product repeatedly and have already tasted it. However, subtle health cues (such as the colour of the packaging) can also miss their mark with less health-conscious consumers (who are often the target of health campaigns). Instead of a positive health impression due to the visual weight of light packaging colours, “light” design elements feed doubts about taste, especially among these consumers. Furthermore, it should be considered that especially health-conscious consumers can become victims of misleading or deceptive packaging if they receive a supposedly healthy (first) impression due to light packaging, which does not conform to the product in the packaging. The influence of even supposedly small and inconspicuous design elements on purchase should not be underestimated. While health and nutrition-related claims on packaging, such as “30% less fat,” are already strictly regulated by law, this is not (yet) the case for subtle packaging elements.

Sensory claims have the potential to increase acceptance and purchase intention. Wansink et al. (2005) were able to show that in a cafeteria, meals whose sensory product characteristics were emphasized were evaluated more positively after consumption than without their naming. Swahn et al. 2012 found that consumers accept known varieties more than unknown varieties and show an increased willingness to buy the known ones. On the other hand, if apple varieties that are previously unknown to consumers are given

a sensory claim, their willingness to buy increases. In order to positively influence the decision-making process of a consumer at the point of sale with a sensory claim, it is important that the claim in advertising and on product packaging is fully understood by the consumer, is seen as helpful and trustworthy, and is perceived as comprehensible during consumption (Clark 1998). Concise but brief information is best for increasing credibility with consumers (Swahn et al. 2012). If the information provided does not meet the generated expectations in terms of appearance, texture or taste in the consumer, this may lead to rejection towards the product. Therefore, when developing sensory claims, care must be taken to ensure that they accurately and correctly describe product attributes (Piqueras-Fiszman and Spence 2015). Sensory claims are particularly appropriate for consumers who view appearance, taste and/or texture as significant product attributes. Sujan (1985) noted that there are two types of consumers who differ in how they develop and hold thoughts: heuristic-based and analytic-based consumers. Heuristic-based consumers tend to make general descriptive comments such as “good” or “bad.” These consumers usually ignore or do not understand the stated claim (Swahn et al. 2012; Wansink et al. 2005). Analytic-based consumers, on the other hand, provide more feature-specific comments and thus detailed information about the product, such as “tastes sweet.” With this group of consumers, there is an opportunity to increase acceptance by naming specific sensory product attributes. Younger consumers need information to satisfy their curiosity about the product, that is why their interest in information about sensory features is particularly high.

Allison et al. (2004) showed that the popularity of crackers can be increased if sensory perceptible key features are indicated during tasting (“Today, you will be tasting three samples of a chili-cheese flavoured snack cracker”). In contrast, the older generation lays more emphasis on health claims (Allison et al. 2004; Fernqvist and Ekelund 2014; Kihlberg et al. 2005). In the case of wine, Mueller and Szolnoki (2010) determined that older consumers attach great importance to the brand name and label. Young, inexperienced consumers, on the other hand, are influenced in their opinion of wine by various factors (brand, country of origin, packaging and label). The indication of sensory product characteristics enables both groups to select wine according to their personal taste, because indications regarding the description of the sugar content, such as “dry” or “semi-dry,” are not obligatory. Sensory claims also have the potential to influence sales, attitudes towards food and purchase intention (Haack 2014; Wansink et al. 2005). Wansink and Park (2002) showed in a study with seafood fillets that sales increased by 27% when a sensory claim (“succulent Italian seafood fillet”) was stated. Swahn et al. (2012) demonstrated that sensory claims (“very juicy,” “sweet,” “slightly sour,” etc.) increased sales of apples by 25% and promoted repeat purchases. Claims also make it possible to increase a company’s sales, as they can also be used to enforce price increases (Swahn et al. 2012). In a study by Mueller et al. (2010), 33% of the test persons were willing to spend more money on wine with sensory characteristics.

The studies on **suboptimal foods** suggest that consumers are less receptive to these products – be it due to the visual appearance of the product itself (maturity level) or poor

packaging (eye tracking study). This was reflected in a lower overall acceptance, purchase intention and in a negatively deviating assessment of individual sensory properties. A positive experience with such products, for example by tasting them, as well as suitable communication strategies can help to counteract the low expectations of consumers. Convincing consumers of the taste benefits (e.g., sweetness of the ripe banana) or the equivalence of the products (e.g., independence of taste from the condition of the packaging) remains one of the most urgent challenges for the food industry. To successfully tackle food waste on the consumer side, it is necessary to know the reasons for throwaway behaviour. Knowledge about the role of sensory properties of food and the importance of packaging characteristics can help to better understand acceptance or rejection of food. Communication campaigns should be focused on increasing consumers' willingness to purchase (supermarket situation) and consume (household situation) suboptimal foods. Despite the beginning of the abolition of marketing standards, products that deviate from the supposed optimum are removed from the shelves by retailers due to concerns that these products will no longer be purchased (Loebnitz and Grunert 2015). Table 5.1 provides an overview of the implications for the food industry and retail for various areas of application.

5.5 Summary

This paper shows that light-coloured packaging obviously has different meanings for different consumers in different purchasing situations. These observations not only provide new impetus for manufacturers to market healthier products, but also offer important new insights for legislators and initiators of health campaigns.

This article also answers the question of what is meant by sensory claims and how they influence customer expectations and perception. With numerous examples from corporate practice, it is shown how advertising with sensory features is already implemented at the point of sale and how companies strategically use sensory claims on packaging as part of their brand statement. Sensory claims are a good alternative to the legally regulated health claims. They offer advantages for manufacturers and are suitable to inspire consumers to buy their products by naming sensory characteristics. For consumers, sensory claims are decision-making aids, as they convey valuable information about the sensory product characteristics. However, consumers should be involved in the development of the claims in order to avoid misleading information about the food's characteristics and thus disappointing the consumer.

The results of the studies on suboptimal foods presented in this chapter show a strong correlation between sensory perception and overall acceptance as well as purchase intention: consumers are quite willing to buy visually suboptimal foods if they are convinced of their taste. Consciously using the human senses in the marketing of food can be an important step towards resource conservation and food waste avoidance in the future.

Table 5.1 Implications for the food industry and retail

Area of application	Description
<i>Food industry</i>	
Target group segmentation	<ul style="list-style-type: none"> • Adaptation of products to different target groups depending on situational (e.g., first vs. repeat purchase) and individual factors (e.g., health consciousness, environmental friendliness) • Target group appropriate use of packaging colour, claims and labels
Strengthening competitiveness	<ul style="list-style-type: none"> • Strategic use of packaging features (e.g., colour, claim, label) as a low-budget opportunity to increase attention, purchase intention and thus sales and profit
Relationship management	<ul style="list-style-type: none"> • Inclusion of the consumer in the product development process to avoid high flop rates • Cooperation along the food value chain to prevent food waste
<i>Retail</i>	
Distribution and pricing	<ul style="list-style-type: none"> • Careful selection of the range of healthy and sustainable (here: suboptimal) foods on offer (e.g., discounter vs. organic market) depending on consumer attitudes and willingness to pay • Price reduction for suboptimal food • Creation of a multi-sensory product experience for the consumer at the point of sale (e.g., tastings)
Product positioning	<ul style="list-style-type: none"> • Permanent offer of a wider range of healthy and sustainable (here: suboptimal) foods • Integration of healthy and sustainable (here: suboptimal) foods into the standard product range • Carrying out tastings and participatory activities (e.g., cooking shows) to reduce negative reservations about healthy (in light-coloured packaging) and sustainable (caused by visual defects) product alternatives • Appealing product presentation of healthy and sustainable food (equivalent to the presentation of conventional food)
Advertising and communication	<ul style="list-style-type: none"> • Use of packaging colour as a subtle way of influencing the purchase decision • Consideration of the contradictory effects of light-coloured product packaging (taste vs. health) • Consideration of the general effect of product colours (e.g., culture-dependent) • Use of darker colours even in healthy foods to avoid false conclusions about taste • Testing effective ways of product communication (price message vs. sustainability message vs. health message) • Emphasising the product benefits of healthy and sustainable food (e.g., taste). • Limited use of product advertising for healthy and sustainable food for consumer groups for whom health and sustainability play a subordinate role

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