Quality in food products: the consumer's perspective

Cristina Marreiros
cristina@uevora.pt

Abstract: Understanding and explaining the process of food evaluation and choice is to understand and explain the perception process of food quality Product quality is a summary construct, which subsumes many other aspects of the product and is a fundamental criterion for consumers to evaluate and choose food products. In this article the concept of quality from the consumers view point is explored and several theoretical models that explain the perception process of food quality are discussed. Furthermore, the importance of quality for consumers' food choice and the role of product attributes and of intrinsic and extrinsic cues on the consumer decision-making process will be discussed. Special attention is given to the issues of health and safety in food products and to their contribution to the perceived quality of these products.

Keywords: consumer, cues, food, perception, quality, safety

1. The quality concept

A great bulk of research on consumer behaviour towards food is concerned with alternative evaluation and choice. During the stage of alternative evaluation, of the decision making process, consumers must determine the evaluative criteria to use for judging alternatives, decide which alternatives to consider, assess the performance of considered alternatives, and select and apply a decision rule to make the final choice (Engel *et al.*,1995).

According to Steenkamp (1997), the criteria used by consumers in the evaluation of alternatives clearly depend, at least to some extent, on the type of food product involved. In the same paper, this author reports about a study (AGB/Europanel,1992) which investigated the importance of a large set of evaluative criteria for product choice in seven EU countries. One important conclusion of the study is that product quality is a summary construct, which subsumes many other aspects of the product. This conclusion is in accordance with the 'multi-attribute' approach to food quality, where quality is regarded as a multi-dimensional phenomenon, and overall quality is described by a set of attributes as perceived by consumers. The buyer then forms an overall, one-dimensional quality evaluation by some weighing of the various attributes, which will determine its choice (Grunert,1997).

As Issanchou (1996) stated, food quality is not an inherent characteristic of the food, but is closely allied with the concept of acceptability and therefore is more relevant to speak about perceived quality. For this author, consumer perceptions of product quality may find their base in physical characteristics of the product, in communication around the product, or in the combination of both. Perceived quality is what will motivate a consumer to buy a particular product for a particular usage. Additionally, perceived quality depends on the person and on the context, *i.e.*, on the circumstances in which food and consumer interact, and changes in perception occur for a person through experience and, for a given population, over time.

Hansen (2001) stated that, from the analysis of the literature, five general interpretations of the concept of quality emerge. These interpretations range from the producer's criteria of quality as adaptation to technical specifications, where quality is viewed as an objective measurable variable, to the consumers' criteria of perceived quality, which is the result of the consumers' subjective assessment of a product. The interpretations of quality in the middle of the spectrum are quality as value, quality as excellence, and quality as the adaptation to expectations, *i.e.*, the ability of the product to satisfy the expectations and needs of consumers.

However, Booth (1995) argued that it is increasingly recognised that the grounds on which any assessment of a product's quality must in the end be the attitudes of

the users. In a comment on Booth's paper, Moskowitz (1995) stated that quality can be related to two factors – the subject's self-designed ideal, and the location of the product on a continuum at some distance from this ideal. The distance of the product to the ideal (its quality) will differ among consumers and among usage situations.

Zeithaml (1988) also defined perceived quality as the result of consumer's judgement about a product's overall excellence or superiority. For her, perceived quality is different from objective or actual quality; a higher level abstraction rather than a specific attribute of a product; a global assessment that in some cases resembles attitude; and a judgement usually made within a consumer's evoked set, *i.e.*, evaluations of quality usually take place in a comparison context. According to Northen (2000), the perceived quality approach analyses product quality from the view point of the consumer, making quality a subjective assessment dependent on perception, needs and goals of the individuals.

Building on the references above, it can be said that understanding and explaining the process of food evaluation and choice is to understand and explain the perception process of food quality. According to Grunert (1997), within the behaviourally--oriented analysis of consumer food choice, several broad approaches to study the perception process of food quality by consumers can be distinguished. These include the economics of information approach, the multi-attribute approach, the hierarchical approach, and the integrative approach.

According to Grunert (1997), from the economics of information approach, product attributes can be categorized as search, experience and credence attributes. Search attributes, such as colour or fat content for meat, can be evaluated before the purchase. Experience attributes, such as taste or juiciness, can be evaluated only after the purchase, during consumption. In the latter case, consumers will try to infer quality from surrogate indicators. For the third group of attributes, the credence attributes, the consumer never, or only at prohibitive costs, has the possibility of finding out whether the product actually possesses the characteristic, and they are a question of the credibility of the seller vis-à-vis the buyer. This is the case with attributes such as healthiness, naturalness or safety.

Northen (2000), expanding on the work of Caswell *et al.* (1998), proposes another way of grouping food attributes into process attributes (e.g. traceability, feed, animal welfare), and product attributes. Product attributes are further split into sub-sets including food safety, nutrition, sensory, functional, and image attributes. Functional attributes, including factors such as convenience of preparation, relate to physical product characteristics, and image attributes are desired by the consumer but may or may not have any connection to the production process or the physical product. According to the author, many food process attributes and some product attributes are credence attributes.

The multi-attribute approach, derived from the multi-attribute attitude theory also assumes that quality is a multi-dimensional phenomenon. According to Grunert (1997), to some extent the distinction between search, experience and credence characteristics has been incorporated into multi-attribute models by the distinction of intrinsic and extrinsic product attributes from Olsen and Jacoby (1972) (in Grunert, 1997). Intrinsic attributes refer to attributes of the physical product, whereas extrinsic attributes refer to everything else. Grunert stated that extrinsic attributes are expected to be used mainly in those situations where information about intrinsic attributes is difficult to obtain, *i.e.*, in those choice situations which are characterized by a predominance of experience and/or credence characteristics.

1.1. The Zeithaml model

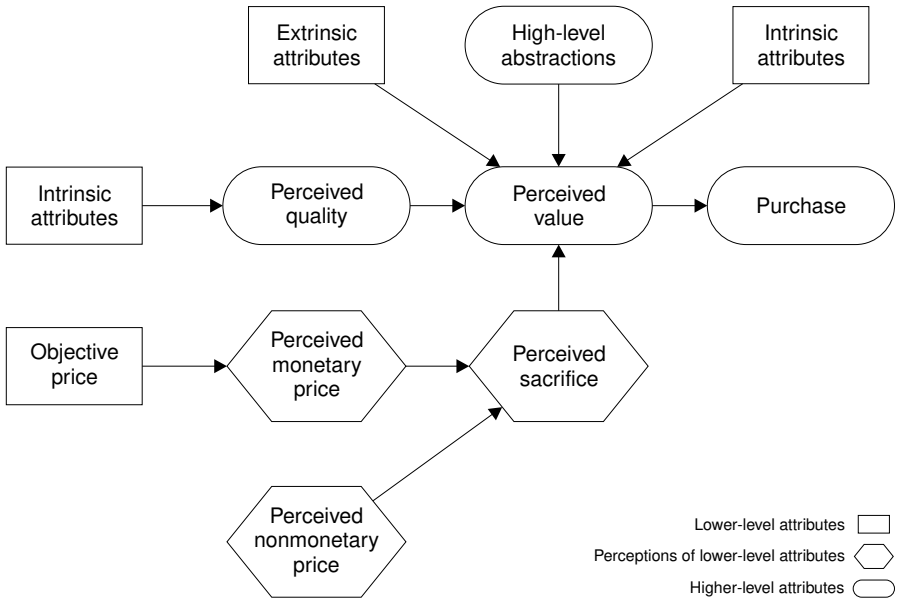
The hierarchical models, from which means-end chain theory (Gutman, 1982) is the most accepted approach, have in common the notion that consumers may infer some attributes from others. These may be attributes at the same level of abstraction, but in most cases the inference will be from the concrete to the abstract. As Zeithaml (1988) explained, consumers organise information at various levels of abstraction ranging from simple product attributes to complex personal values.

According to Gutman (1982), a means-end chain shows how a product characteristic (concrete or abstract) is linked to consequences (functional or psychological) of consumption, which in turn may be linked to the attainment of values (instrumental or terminal). Quality has been included in multi-attribute models as though it were a lower level attribute, but perceived quality is instead a second-order phenomenon an abstract attribute, as Zeithaml (1988) argued in a review paper, where she proposed an adaptation of a model first developed by Dodds and Monroe (1985) (in Zeithaml, 1988). The model depicted in Figure 1, defines and relates price, perceived quality, and perceived value, and gathers results from past research into those concepts. The model, which is proposed for products in general, can clearly be applied to food products.

The figure is somehow self-explicative: perceived quality, a higher-level attribute, is an overall judgement based on perceptions of extrinsic and intrinsic attributes. Perceived price influences both the perceived quality and the perceived sacrifice. Zeithaml (1988) further explains that in the means-end chains, value (like quality) is a higher level abstraction. It differs from quality in two ways. First, value is more individualistic and personal than quality and is therefore a higher level concept. Second, value (unlike quality) involves a trade-off of give and get components. The benefit

components of value include salient intrinsic attributes, extrinsic attributes, perceived quality and other relevant high level abstractions. The sacrifice components of perceived value include monetary price and non-monetary price. Extrinsic attributes serve as 'value signals' and can substitute for active weighing of benefits and cost. Finally, the perception of value depends on the frame of reference in which the consumer is making an evaluation and the perceived value affects the relationship between quality and purchase.

Figure 1 – The Zeithaml model



1.2. The total food quality model

According to Northen (2000), a more recently accepted view of perceived quality and attribute types is one where customers' perceptions of quality prior to purchase are based on quality cues. Quality cues are any informational stimuli that can be ascertained through the senses prior to consumption and, according to the consumer, have predictive validity for the product's quality performance upon consumption (Steenkamp, 1997). Ophuis and Van Trijp (1995) argued that quality cues can be ascertained by the senses prior to consumption, whereas quality attributes are bene-

fit-generating product aspects and cannot be observed prior to consumption. When searching for products to buy, consumers will most often use quality cues to predict attributes they desire in a product. In summary, Northen (2000) stated that the use of the term 'search attribute' to describe the analysis of a product prior to purchase is replaced by the term 'cue'.

Steenkamp and Van Trijp (1996) argued that as with the attributes, a distinction can be made between intrinsic and extrinsic quality cues. Intrinsic cues are part of the physical product. They cannot be changed without also changing the physical product itself in contrast with extrinsic cues, which are predominantly marketing related. For example, for meat, intrinsic cues will include visual cues such as colour, marbling or cut, in addition to non-visual cues such as smell. Extrinsic cues will include price, brands, labels, shop, or country-of-origin. Northen (2000) stated that extrinsic cues have the capacity to communicate both experience and credence attributes. In contrast, intrinsic cues are not able to communicate credence attributes; hence, the only way of successfully predicting credence attributes will be through the use of extrinsic cues. However, intrinsic cues will be more successful in predicting experience attributes.

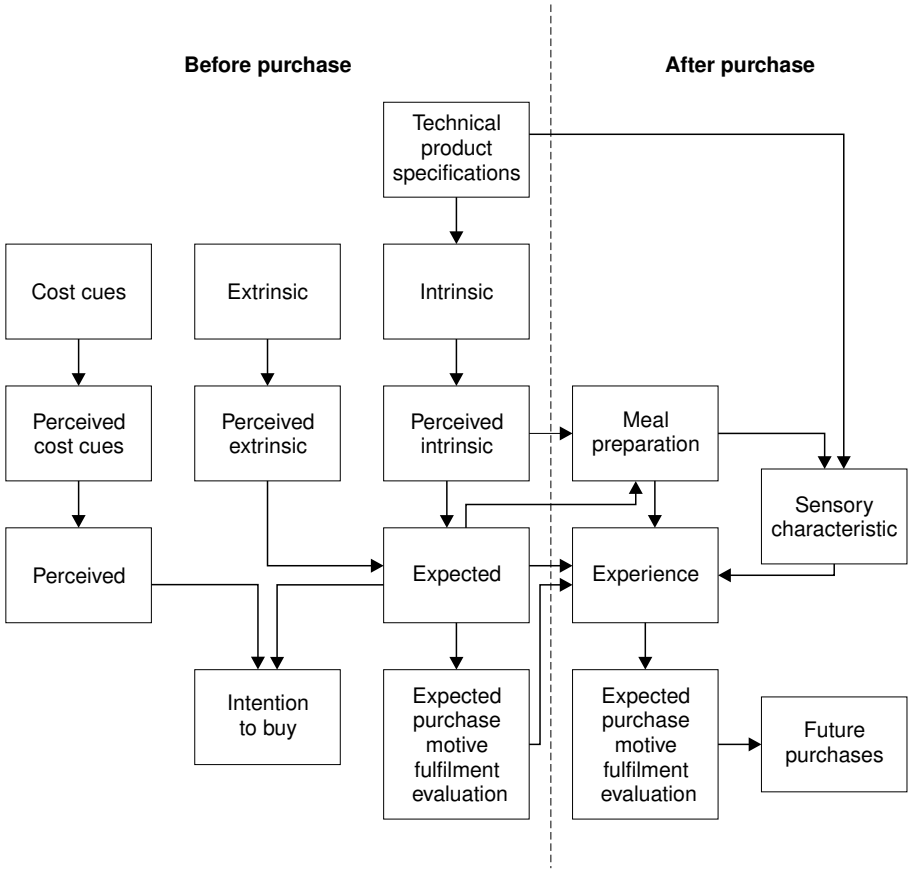
The integrative approaches, as can be understood by their name, try to integrate the other approaches into a unified framework for the analysis of the quality perception process for food products. Two of the most notable cases of this integration are the work by Steenkamp and Van Trijp (1996), the Quality Guidance Model, and the Total Food Quality Model by Grunert *et al.* (1996). Grunert *et al.* (2004) argue that the Total Food Quality Model (TFQM), depicted in Figure 2, is an attempt to integrate all the different approaches, to the analysis of consumer quality perception and decision-making. In the same review paper, the authors do a summary description of the model, emphasising that the basis of the TFQM is the distinction between before and after purchase evaluations.

Most food products have search characteristics only to a limited degree. In order to make a choice, the consumer will develop quality expectations but it is only after consumption that experienced quality can be determined, and even this is limited in case of credence characteristics.

In the before purchase part, the model shows how quality expectations are formed based on the quality cues available. The intrinsic quality cues are related to the product's technical specifications, *i.e.*, characteristics that can be measured objectively. The extrinsic quality cues represent all other characteristics, such as brand name, price, outlet packaging, etc. Of all the cues consumers are exposed to, only those which are perceived will have an influence on expected quality (Grunert *et al.*, 2004). According to the TFQM, quality is not an aim in itself, but is desired because it helps to satisfy purchase motives or values. The values sought by consumers will, in

turn, have an impact on which quality dimensions are sought and how different cues are perceived and evaluated. Expected quality and expected fulfilment of purchase motives constitute the positive consequences consumers expect from buying a food product, and are offset against the negative consequences in the form of costs. The trade-off determines intention to buy. Price can be both a cost cue and an extrinsic quality cue.

Figure 2 – The total food quality model (TFQM)



After the purchase, the consumer will have a quality experience, which often deviates from expected quality. The experienced quality is influenced by many factors. The product itself, especially its sensory characteristics, but also the way the product has been prepared, situational factors such as type of meal, previous experience, etc. According to Grunert *et al.* (2004), the relationship between quality

expectation and quality experience is commonly believed to determine product satisfaction, and consequently, the probability of purchasing the product again.

Compared with the Zeithaml model, it can be said that the TFQM does not explicitly include price as an extrinsic cue. Additionally, the model does not consider perceived value as a higher-level abstraction, incorporating instead perceived quality and perceived cost (which can be interpreted as the perceived sacrifice proposed by the first model). However, the later model is more precise about the formation of expectations process and its relation with experience and satisfaction. This is possible because the TFQM was developed especially for the perception and evaluation of food quality and, consequently, can better analyse those processes which, sometimes, cannot be generalized to other categories of products.

1.3. Extensions and other models

Issanchou (1996), in a paper presenting the determinants of food quality proposed in the literature, also pointed out that determinants of perceived quality of a given product will differ depending if quality perception is considered prior to purchase, at the point of purchase or upon consumption. However, this does not imply that perceived quality attributes at one of the stages do not influence the perception of quality at another stage. For Issanchou (1996), perceived quality prior to purchase will determine the purchase intention and is largely determined by beliefs and attitudes. In forming the purchase intention, the consumer trades off perceived quality, determined by beliefs, attitudes, and previous experience against price attitudes. In a purchase situation, the consumer has access to intrinsic and extrinsic cues that can be observed. Depending on previous information and experience, quality cues are used at the point of purchase to infer expected quality attributes. It is not always possible for the consumer to infer experience quality attributes from quality cues available at the point of purchase. In such cases, and when consumers are involved with the product, perceived risk tends to be higher. The same logic can be applied to credence attributes. Moreover, as in the TFQM, Issanchou (1996) argued that, for perceived quality upon consumption, sensory attributes are the most important experience quality attributes of food. However, he also recognised that expectations affect the perception of experience quality attributes.

A number of similar models or adaptations of the TFQM have been proposed in the literature (Becker, 2000; Bernués *et al*., 2003; Bredahl, 2004; Poulsen *et al*., 1996; Steenkamp and Van Trijp; 1996). The Quality Guidance model defined by Steenkamp and Van Trijp (1996) is an integrated consumer-based quality improve-

ment approach that, as in TFQM model, relates perceived quality judgements to physical product characteristics. It consists of three distinct but related steps:

— identification of quality judgments;

— disentanglement of the quality judgments into perceptions of intrinsic quality cues and quality attributes;

— translation of the consumer perceptions into physical product characteristics.

The Quality Guidance model is somehow a more straightforward version of the TFQM, where experienced quality is designated 'quality performance'. The model distinguishes between quality cue perceptions and quality attribute perceptions. Quality attributes represent what the product is perceived as doing or providing for the consumers in relation to their wants, and form the basis for consumers' preferences. Perceptions of intrinsic quality cues as well as perceptions of quality attributes are influenced by the product's physical characteristics.

The model consists of two phases, the abstraction phase and the integration phase. The abstraction phase models the psychophysical relationships between physical product characteristics and intrinsic cue/attribute perceptions. The model posits that physical product characteristics are abstracted to form the basis for consumer perceptions about the intrinsic quality cues and quality attributes. A single physical characteristic need not lead to a single intrinsic cue/attribute perception. Moreover, multiple physical characteristics must often be combined to arrive at an intrinsic cue/attribute perception.

The integration phase models the way intrinsic cues perceptions and quality attribute perceptions are integrated into a judgement about quality expectation and quality performance, respectively. According to the authors, quality expectations are important in inducing the consumer to try out the product, while quality performance is of paramount importance in stimulating repeated purchase behaviour, which is in accordance with the TQFM. Also for Steenkamp and Van Trijp (1996) the evaluation of the quality performance may be influenced by expectations that were formed with respect to the anticipated fitness for consumption.

Steenkamp and Van Trijp (1996) argued that their model and the TFQM share a number of aspects; however the focus of the two models is somewhat different. The TFQM elaborates on the integration phase and also incorporates purchase intention, while the quality guidance model gives much attention to the abstraction phase. For Steenkamp and Van Trijp (1996), the TQFM is more comprehensive, while the quality guidance model is easier to operationalise and quantify in empirical settings.

Poulsen *et al.* (1996) pointed out that one limitation of the Quality Guidance Model is its concern only with intrinsic cues, and that extrinsic cues may have an

important influence in the quality formation process. This is even more important since the attributes of food are mainly experience and credence attributes, for which, consumers also use extrinsic cues to form their quality expectations, particularly in the case of credence attributes. Additionally, generally, the model does not consider the influence of other factors in the formation of expectations or in quality evaluation. However, these influences are taken into account in the model of consumer behaviour proposed by the same authors (Steenkamp, 1997).

Poulsen *et al.* (1996) presented an extension of the Quality Guidance Model that includes the consumer quality formation process. The authors raise the question that, given the interpretation of product quality as an overall, uni-dimensional measure of 'fitness for use' as defined by Steenkamp and Van Trijp (1996), how are the two constructs (quality expectations and quality experience) combined to form this overall perception of quality. They propose to model this quality formation process by measuring overall quality as a separate construct using multiple indicators. Hence, they suggest an additional structure on the integration phase of the Steenkamp and Van Trijp model, called the quality formation process. In their work, the researchers specified the part of the model that relates to the quality formation process as consisting of three latent variables, expectation, experience, and overall quality. Each of these constructs has its separate measures that are interpreted as 'soft' since they represent consumer perceptions which are in turn determined by the physical characteristics of the products. In this sense, this model is similar to the Zeithaml model since it considers one higher-level abstraction construct of perceived overall quality.

Poulsen *et al.* (1996) argued that, given the three constructs, a number of possible hypotheses about their mutual relationship are possible. In an application to a specific product (butter cookies), the most striking result is the high importance of expectations. Most of the variation in experience is explained by expectations and two thirds of the variation in perceived overall quality is explained by the sequential influence of expectations and experience.

Becker (2000) proposed the 'Consumer Attribute' model to analyse consumer behaviour towards food, which, he argued, is rather similar to the Quality Guidance Model. However, in the Becker model the role of extrinsic cues on the formation of perceptions is introduced as an important one. Becker's framework intends to link together quality as perceived by consumer, and quality as managed and produced by private and regulation public organisations, and it makes the distinction between product characteristics (objectively defined by producers) and product attributes (perceived by consumers).

The consumer receives information on product attributes during shopping and consuming. The author makes the distinction between search, experience and credence quality attributes and between the cues used by the consumer to evaluate the

product according to the three types of quality. Search quality (quality in the shop), a concept equivalent to the concept of expected quality defined in the models previously described, consists of the quality attributes cues that become available at the time of shopping and that can be both intrinsic and extrinsic cues. Experienced quality (eating quality) consists of the quality attributes cues which are available in use or in consumption. For the author, those are only intrinsic cues and are important for the organoleptic quality perception by the consumer. Finally, in credence quality, which represents the quality attributes which are of concern for the consumer, no cues are accessible in the process of buying and consuming. The consumer has to rely on other information as delivered by the media, word-of-mouth, etc., and extrinsic cues are the dominant means of informing the consumer on credence quality attributes.

In the Becker model, cues are a way of exchanging information between the demand side and the supply side of quality. On the demand side, cues are used for quality selection, evaluating organoleptic quality and confirming the credence quality attributes. Cues are learned while shopping and consuming or not at all. Furthermore, the author argues that cues differ in their predictive value. The predictive value captures the extent to which a cue contributes to the satisfaction of the needs of consumer. This extent differs between consumers. Additionally, search attribute cues are used for predicting experience quality and credence quality, and experience quality attribute cues may be used to predict credence quality. Consequently, the three forms of quality may be linked in a hierarchical order.

In conclusion, the three dimensions of quality are regarded as the basis for perceived quality, so, as in the extension of the Quality Guidance Model (Poulsen *et al.*, 1996), an overall, uni-dimensional measure of perceived quality, composed of three constructs, is modelled. Becker emphasises the role of the industry in defining characteristics of the product in what concerns shopping, sensory and 'process, safety and nutritional' quality, and the way these characteristics are communicated through extrinsic or intrinsic cues. The several definitions of quality included in the model can be interpreted as the quality continuum defined by Hansen (2001).

More recently, Bernués *et al.* (2003) proposed a conceptual model of supply, perception and demand of food quality that gathers together several aspects of the models built by Becker (2000), Grunert (1997), Steenkamp (1997), and Steenkamp and Van Trijp (1996). The model differs from the TFQM in four main aspects. First as in the Becker (2000) model, the supply of quality by industry is explicitly represented, emphasising the implications for the intrinsic, extrinsic and cost characteristics of the product. Second, expected quality, formed in the purchasing situation, is also separated into search and credence quality. Third, a perceived overall quality is conceptualised as being influenced by search, credence and experienced quality. Finally, the overall perceived quality, together with the dynamic and increasingly diverse per-

sonal and environmental factors, as defined by Steenkamp (1997), determine the purchasing motives, that are linked with credence and expected quality.

Bredahl (2004), in an empirical study on quality expectations and quality experience, found that both have two underlying constructs, health quality and eating quality. In other words, when evaluating experience quality, consumers also consider health quality (a credence attribute), which is determined by their expectations in this dimension and by experienced eating quality. Expected health quality is formed only on the basis of extrinsic cues. In his model, Bredahl also includes past purchases, which directly influence expected eating quality, and future purchases, which are also explained by the two constructs of experienced quality.

Hoffmann (2000) also divided expectations and perception after purchase (experience) into two constructs: food quality and food safety. For this author, expected food quality and expected food safety are determined by perceptions of extrinsic and intrinsic cues and perceptions, and expectations can also be influenced by other factors such as socio-economic factors, attitudes, preferences, and prior experiences. These factors also have an influence on experienced food quality and safety. Another different feature of this model is that it allows the possibility of experience and credence characteristics being communicated via intrinsic or extrinsic quality cues, created by a party perceived as trustworthy by consumers, *i.e.*, a third party must exist creating credentials to allow credence and experience characteristics to be transmitted to consumers through either extrinsic or intrinsic cues.

In summary, from the models described in this section, it can be said that perceived quality is a global assessment of the product based on extrinsic or intrinsic cues. If the costs (monetary or other) are considered, consumers form another higher-level abstraction, which Zeithaml (1988) designated as perceived value. Quality perceptions are defined by expected quality (before purchase) and experienced quality (after consumption). In more recent models, these two constructs have been hypothesised to be composed of two other constructs, which in general terms can be designated as eating (*i.e.* sensory) quality and credence (e.g. health, safety) quality.

2. Quality and food

Consumers make their choices on the basis of the perceived value of products, in where the consumer reaches a compromise between price and expected quality. The relationship between the two influences is not necessarily a monotonic one and is

subject to diverse influences (Grunert,1997 and Zeithaml, 1988), as it will be discussed in the next sections.

2.1. Choice and quality

According to Steenkamp (1997), traditionally, most research on the evaluation of food products has focused on product attributes. In a meta-analysis of the research in this field, Zeithaml (1988) drew some conclusions about the role of product attributes and of intrinsic and extrinsic cues on the consumer decision-making process. This author concluded that consumers depend on intrinsic attributes more than on extrinsic attributes at the point of consumption, pre-purchase situations when intrinsic attributes are search attributes (rather than experience attributes), and when the intrinsic attributes have high predictive value. On the other hand, consumers depend on extrinsic attributes more than intrinsic attributes in initial purchase situations when intrinsic cues are not available, when evaluation of intrinsic cues requires more effort and time than the consumer perceives is worthwhile, and when quality is difficult to evaluate at the time of purchase, as is the case for experience and credence goods (Zeithaml, 1988).

As Beharrell and Denison (1991) concluded, in their study of different food products, that for each product category customers looked for different bundles of attributes and, certainly, different priorities were attached to attributes across product categories. Nevertheless, according to those authors, some attributes feature more prominently in the rank orderings than others across product categories. With respect to food choice, the attributes that more often are classified as the most important are: quality, freshness, taste, price, nutrition, and lately, health and safety (Beharrell and Denison, 1991; Gracia and Albisu, 2001; Lappalainen *et al.*, 1998; Wandel and Bugge, 1997; and Woodward, 1988). Other attributes such as appearance, convenience, packaging (Gracia and Albisu, 2001), image novelty, naturalness (Woodward; 1988), and family needs (Lappalainen *et al.*, 1998) have also been identified as factors that influence food consumption decisions. In Eurobarometre 44.1 (INRA, 1996), which included various categories of fresh food products, the more important attributes for EU consumers when choosing food products were, in decreasing order of importance: appearance, price, brand, origin and PDOs, and quality label. Portuguese consumers show some differences with the EU average. In Portugal the importance of appearance as a choice criterion is above the average, price is at the same level as the EU average, but brand, origin and quality labels are well below the two more important criteria and below the EU average.

Concerning price, no consensus exists on its importance as choice criteria. For example, Lappalainen *et al.* (1998) found that the influence of price on food choice varied greatly between European countries. However, when the combined sample was considered price was the second most frequently mentioned influence, and it was the most important in research by Brunso and Grunert (1998). On the other hand, Woodward (1988) pointed out that the dominance of price as a factor influencing food choice appears to have been declining with other factors gaining in importance. According to Santos (1999), price is an important factor for the majority of Portuguese consumers. More than half of the respondents in this study mentioned this criterion. However, the majority of the consumers also declared that sometimes they buy products they perceive as expensive only because they like them.

2.1.1. Quality

As Lappalainen *et al.* (1998) pointed out, quality appears to be of paramount importance among almost all consumers. Hansen (2002) also concluded that the main predicting elements of buying intention were quality and attitude. Consequently, Hansen infers that consumers do not use their cognitive and affective skills independently; rather they affect each other. In line with Hansen's arguments, Moskowitz (1995) concluded that consumers appear to have difficulty differentiating between liking and quality, and may treat them equally. At least on a sensory basis, quality can be measured by overall liking. Grunert (1995) agreed that there are good reasons to define food quality as the overall liking or acceptability experienced by a consumer. In contrast to the findings of Moskowitz (1995), Zeithaml (1988) concluded that the higher the proportion of search attributes compared to experience attributes, the more likely it is that quality is a higher level cognitive judgement. Conversely, as the proportion of experience attributes increases, quality tends to be an affective judgement.

Moreover, as was discussed in the preceding section, quality is more than an attribute; it is a construct that embraces many other product attributes. Moskowitz (1995) concluded that, to the consumer, the concept of overall quality differs from the specific sensory aspects which it comprises. Henchion and McIntyre (2000) concurred, concluding that consumers' perceived quality is complex and multifaceted, and they use both objective and subjective attributes to define characteristics of quality. In other words, Hansen (2001), Moskowitz (1995) and Zeithaml (1988) concluded that product attributes that signal quality and its relative importance are product specific, but dimensions of quality can be generalized to product classes or categories. Grunert *et al.* (2001) argued that one useful typology for the quality dimensions of food products classifies them into hedonic dimensions (the ones connected to pleasure),

safety dimensions (the ones connected to health), and dimensions connected to the practices and the processes of production.

Both Issanchou (1996) and Grunert (1995) considered that the quality of food products is determined by sensory properties, safety, nutritional value, variation, and convenience. Booth (1995) added to these factors microbiological integrity, shelf-life, and brand image. For Grunert (1995), consumers' overall evaluation of quality depends on the extent to which they believe a product has, or will lead to, those attributes.

2.1.2. Quality cues

Extrinsic and intrinsic cues serve as a basis for the consumers' perceptions of food products quality. Studying a set of cues that consumers could use to evaluate quality in the shop, Becker (1999) extracted two factors which have high factor loadings either of the set of intrinsic attributes or of the set of extrinsic attributes, supporting the traditional cue classification. Additionally, Becker (2000) obtained results that, according to him, clearly support the categorisation of quality attributes into search, experience and credence attributes and demonstrate that consumers agree on the categorisation of a particular attribute. Nevertheless, evidence from Liefeld *et al.* (1996) supported the conclusion that the relative importance of intrinsic and extrinsic cues are product dependent. Grunert (2002) pointed out that consumers' use of cues to infer quality is sometimes rather surprising. Consumers use colour of meat to infer tenderness, consistency of yoghurt to infer taste, packaging of beverages to infer healthiness. In most of these cases, consumers are quite aware of the fact that the cues used are not highly predictive of the desired quality dimensions. However, more predictive cues may be unavailable, or consumers do not feel confident to make a judgements based on them.

According to Zeithaml (1988), the importance of intrinsic attributes at the point of purchase depends on whether they can be sensed and evaluated at that time. That is, whether they are search attributes. In their absence, consumers depend on extrinsic cues. According to Zeithaml (1988) researchers have concluded that intrinsic cues are, in general, more important to consumers in judging quality because they have higher predictive value than extrinsic cues. The greater importance of intrinsic cues for consumers was confirmed by Henchion and McIntyre (2000) in an empirical study on regional food products, and also by Liefeld *et al.* (1996). Liefeld *et al.* (1996) concluded that, rather than carefully analysing all the available information in a systematic way, consumers trusted in their ability to evaluate the products themselves. Some respondents relied solely on their assessment of intrinsic cues. Becker (1999) argued that in the case of unbranded and unlabelled products, such as fresh meat

and other fresh foods, quality perception by the consumer has to rely particularly on intrinsic cues, such as appearance and freshness.

According to Zeithaml (1988), extrinsic attributes (e.g., price, brand name, level of advertising) are not product-specific and can serve as general indicators of quality across all types of products. Extrinsic cues are posited to be used as quality indicators when the consumer is operating without adequate information about intrinsic product attributes. This situation may occur when the consumer has little or no experience with the product, has insufficient time or interest to evaluate the intrinsic attributes, and cannot readily evaluate the intrinsic attributes. The brand name serves as a 'shorthand' for quality by providing consumers with a bundle of information about the product (Zeithaml, 1988). In harmony with this contention, Henchion and McIntyre (2000) concluded that consumers rely heavily on the use of brands both as a symbol of quality assurance and as a means of tracing products to their original producer.

In the case of credence attributes, consumers may rely on extrinsic cues because they are simpler to access and evaluate (Zeithaml, (1988). For Hansen (2001), in the absence of credible information, consumers may try to infer credence characteristics from other cues, such as organic production from dirty vegetables. But inferences may work the other way round. Once credible information about a credence characteristic becomes available, consumers may also make inferences to other quality dimensions, as was found by Hansen (2001) in a choice experiment involving pork. Consumers who choose organic pork expected it to be better than conventional pork across all quality dimensions, like taste and healthiness.

Price is simultaneously a product attribute and an extrinsic quality cue. However, Acebrón and Dopico (2000) pointed out that in several studies the association between price and perceived quality is not pronounced, varying greatly according to products and individuals. Research by Zeithaml (1988) also indicated that price is among the least important attributes that consumers associate with quality. Nevertheless, Acebrón and Dopico (2000) stated that most of the studies found that price and quality are positively related, as corroborated by the findings of Hansen (2002). In her analysis of research in the field, Zeithaml (1988) concluded that price appears to function as a surrogate for quality when the consumer has inadequate information about intrinsic attributes. When price is combined with other (usually intrinsic) cues, the evidence is less convincing. Moreover, research has also shown that price is used as a quality cue to a greater degree when brands are unfamiliar than when brands are familiar. Zeithaml (1988) added that when the perceived risk of making an unsatisfactory choice is high, consumers select higher priced products. Accordingly, Rao and Bergen (1992) found out that while for search products price premiums may reflect buyers' lack of information, for experience products they may be an insurance

mechanism. Furthermore, Zeithaml (1988) concluded that the use of price as an indicator of quality also depends on three issues:

- first, the greater the price variation within a product class, the greater the tendency for consumers to use price as a quality indicator;
- second, in product categories where little variation is expected, price may function only as an indication of sacrifice, whereas, in categories where quality variation is expected, price will function also as an indication of quality;
- third, if consumers do not have sufficient product knowledge (or interest) to understand the variation in quality, price and other extrinsic cues may be used to a greater degree.

2.2. Food health and safety

According to Verbeke and Viaene (2000), consumer concerns about food related hazards, food safety risks and the impact of food consumption on human health have, continuously, increased during the last decade. Grunert (2002) argues that the increasing importance of those issues relates not only to unwanted production processes and components, like the use of GM, but also to production processes and properties, which (some) consumers regard as desirable, like organic production. Verbeke and Viaene (2000) add that with respect to food of animal origin, related and emerging issues include animal welfare and environmental effects from today's current livestock production methods.

For European citizens, a safe food product is a product without pesticides, hormones and controlled by the competent organisations (Eurobarometer 49, INRA, 1998). Several empirical studies (Briz *et al.*, 1999; Henson and Northen, 2000; Wandel, 1997) have found that most consumers consider that the foods they buy in shops are safe. However, these results can vary considerably among studies, according to the country or the situation, as is shown both in Henson and Northen (2000) and in Eurobarometer 49 (INRA, 1998). Almost half of European consumers think that the safest products can be bought in the supermarkets and hypermarkets but also directly from the producer. However, Portuguese consumers perceive supermarkets and hypermarkets to be much less safe than is the case for the EU in general (INRA, 1998). Eurobarometer 49 reported that, for European consumers, freshness is the most important attribute to food safety. Moreover, trust on the safety of food products increases if they are nationally controlled, and this is even more accentuated in the case of Portugal. However, eight out of ten European consumers declared that more

numerous and strict controls were needed, mainly over the producers. These are the least trusted links in the food chain.

Another source of variation in the level of consumer concern and in food risk attitudes is the emergence of a crisis or a scare related to food-borne diseases. For Grunert (2002), food safety considerations seem, to a large extent, to be a 'sleeping criterion', which can come to dominate food choice in situations of crisis but with limited effect under normal conditions. Conversely, the work of Richardson *et al.* (1993) suggested that, even before the BSE crisis, meat safety was a key issue for consumers. The results of Smith *et al.* (1999) agree with that, indicating a low level of confidence in food even before the scare. However, and confirming Grunert's findings, in a study by Angulo and Gil (2004) two-thirds of respondents declared themselves to be more concerned about food safety than five years before. Also Roosen *et al.* (2004), in a comparison of attitudes towards food related risk in different periods, observed that consumers' assessment of food risks jumped up with the advent of the BSE crisis. In this last study the use of hormones and biotechnology triggered the highest degree of consumer concern.

Several studies (e.g. Baker, 1998; and Latvala and Kola, 2002) showed that consumers clearly demand and give high value to information and quality concerning, in particular, the safety of food products. Wandel (1997) supported these results, concluding that uncertainty about food safety was associated with the feeling of not having enough information. Angulo and Gil (2004) also found that consumers perceived that food products are not as safe as they should be and feel that they do not have enough information to assess food safety before buying it.

It is important to add that consumers have different levels of trust at different levels of analysis. For instance, when people trust the safety of food products in general, they can simultaneously be much less confident at the level of product categories (Dagevos and Van-Gaasbeek, 2000). For example, Wandel and Bugge (1997) concluded that environmental concerns in the evaluation of food quality are more prominent with regard to fruits and vegetables than meat. Along with those findings, in Eurobarometer 49 (INRA, 1998), fresh meat is, on average, the fresh product viewed as the least safe. On the other hand, Wandel and Bugge (1997) found a positive and significant relationship between positive attitudes towards food safety and consumers' perceptions of beef safety. However, according to Angulo and Gil (2004), it seems that, although positively correlated, increasing consumers' safety concerns have not been corroborated by changes in food habits of the same magnitude. In any case, in this study almost half of respondents declared that they had changed their shopping habits.

As it was mentioned earlier, one other issue that is increasing in importance in food consumption is its relation to health. According to Allen *et al.* (1992), many stu-

dies have considered health only in connection with nutrition and fat. However, these authors argued that health should be operationalised to include aspects of safety. According to Wandel (1997), fat is the main concern of consumers when they try to eat a healthy diet. In spite of the negative perception of fat, certain foods, such as cream, butter and red meat are desired regardless (Barker *et al*., 1995; Zandstra *et al*., 2001). According to Barker *et al.* (1995), this may be due to the high ranking of these products in the food hierarchy. These foods appear to be valued for their prestigious nature, being at the apex of the food hierarchy. Zandstra *et al.* (2001) added another probable reason for this apparent contradiction, which is that the fat content of food categories such as meat is 'hidden' and often hard to recognise, which makes it difficult for consumers to change their behaviour.

Moreover, several authors (e.g., Roininen *et al*.; 1999; Verdurme and Viaene 2003; and Zandstra *et al*., 2001) pointed out that naturalness is looked upon as healthy. With respect to other credence process characteristics, consumers are willing to pay a little more for food produced in an environmentally sound manner, but they are a little less willing to pay more for meat which would be produced according to ethical animal care principles (Wandel and Bugge, 1997). This is consistent with the results of Angulo and Gil (2004), who found that when consumers could only choose two properties of the product, few selected environmental friendly production and animal welfare.

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