



Consumer Value perceptions of food products from emerging processing technologies: A cross-cultural exploration



Toula Perrea*, Klaus G. Grunert, Athanasios Krystallis

MAPP Centre for Research on Customer Relations in the Food Sector, Department of Business Administration, Aarhus University, Bartholins Alle 10, Bygn. 1326 – 111, 8000 Aarhus C, Denmark

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ABSTRACT

Through a qualitative research approach, the present paper aims to explore the range and type of 'values' and 'costs' in formulating overall Consumer Value (CV) perceptions, in association with two emerging processing technologies that at the outset are neither distinctly positive nor negative in the eyes of consumers, in two culturally variant contexts, namely a Western society where technology is often met with skepticism (i.e., the UK); and a non-Western society where technology plays a reassuring role regarding concerns about food safety and quality (i.e., China). Results reveal that the most important value and cost dimensions that define CV perceptions are reasoned and utility-related, in particular 'functional (i.e., economic) value' and 'performance (i.e., taste-related) cost'. Moreover, additional value and cost types of affective nature play an important role, such as 'emotional value', '(dis)trust' and '(un)familiarity'. Furthermore, a number of differences emerge when CV perceptions are related to participants' differences in attitude to technological progress (i.e., pro- or counter-technology individuals), lending support to the assumption that consumers with different general attitudes towards technological progress would differ in the number and type of value–cost dimensions that define their CV trade-offs. Finally, a between-countries comparison revealed that counter-technology consumers in both cultural contexts share more value and cost perceptions than their pro-technology counterparts, who 'allow' more room for cultural discrepancies to impact on their CV perceptions. Overall, findings support the view that CV perceptions in the context of food produced by means of emerging processing technologies can be successfully analyzed using a multidimensional conceptualization, where CV is seen as the outcome of a trade-off among a number of 'competing' value and cost dimensions.

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Introduction

Technological progress spurs the emergence of new food production and processing technologies. But while food scientists applaud the progress of science, consumers have been known to take a more conservative stance by not accepting the benefits of new processing methods, at least not without questioning (Grunert, Bredahl, & Scholderer, 2003). Studying consumer attitudes towards food products produced by employing new food technologies thus is a prerequisite for market success, especially at an early stage of their transformation into marketable products (Siegrist, 2008). Through a qualitative research approach, the present paper aims to explore Consumer Value perceptions towards two food products that result from two emerging processing technology, and to undertake this exploration in two culturally

different contexts. The following paragraphs delineate this aim by shading light on its main components, each one constituting a separate research objective.

Following up on extant literature and incorporating marketing theories that approach consumer attitudes as perceived gain-loss trade-offs (i.e., Holbrook, 2006; Zeitahml, 1988), the paper addresses the issue of Consumer Value (hereafter CV) perceptions towards foods processed by emerging technologies. Accordingly, the first objective of this paper is to explore the possible range and type of perceived gains and losses impacting an overall CV perception associated with food products resulting from emerging processing technologies. The application of the CV framework is a new advancement in the analysis of consumer reactions to new food processing technologies, since it refers to the attitudes towards the resulting food product, not the technology behind it. Moreover, in the occasions when product, not technology acceptance has been studied in the existing literature (e.g., Abadio-Finco, Deliza, Rosenthal, & Silva, 2010; Cardello, Schutz, & Leshner,

* Corresponding author. Tel.: +45 871 65158.

E-mail address: toula@asb.dk (T. Perrea).

2007; He, Fletcher, & Rimal, 2005; Laboissiere et al., 2007), mostly a uni-dimensional measure has been used, while the multidimensional measures of consumer acceptance used in extant literature (e.g., Bredahl, 2001; Bruhn, 2007; Cardello, 2000; Grunert, Søndergaard, & Scholderer, 2004; Lahteenmaki et al., 2002; Luckow, Sheehan, Delahunty, & Fitzgerald, 2005; Olsen, Grunert, & Sonne, 2010; Rollin, Kennedy, & Wills, 2011; Ronteltap, Van Trijp, Renes, & Frewer, 2007; Søndergaard, Grunert, & Scholderer, 2005) mainly refer to risks and benefits of the technology, not the product. Thus, accomplishment of the paper's first objective will, first, shed light on CV perceptions of a product that has come about by using an emerging technology, instead of customer perceptions of the technology *per se*; and second, do this by adopting a well-developed framework, namely CV, to explore how the use of an emerging technology affects the various dimensions of value (i.e., gains and losses) consumers expect to exist in the purchasing and consumption of the new products.

Two combinations of processing technologies and products (i.e., High Intensity Ultrasound (HIU)¹ in producing yoghurt, and Infusion Heat Treatment (IHT)² in producing milk) are selected as examples. The selection of the specific technologies was based on their characterization as 'emerging' in terms of industry adoption and market acceptance (Gupta, Fischer, & Frewer, 2011; RECAPT, 2012a,b,c) and the fact that they can both bring about a range of different benefits to yoghurt/milk consumers and the dairy industry, but at the same time bear some risks that can potentially decrease consumer perceived CV (c.f. Appendix 1 for a description of the two technologies). The choice of those emerging technologies plays a major role in relation to the above-described aim of the paper. HIU and IHT are not high-profile technologies like GM or irradiation, where the attitude towards the technology would overshadow the product perception; on the other hand, HIU and IHT are still high-tech technologies that, unlike green production that typically causes positive affect, could still lead to consumer reluctance or skepticism regarding acceptance of the resulting products. Consequently, the second objective of the paper is to explore CV perceptions in association with two emerging processing technologies that at the outset are neither distinctly positive nor negative, as it is the majority of the new processing technologies nowadays. Accomplishment of the second objective of the paper will generate insights that can help optimizing communication that highlights the contribution of technology to the generation of positive Customer Value perception.

Finally, the present paper introduces a cross-cultural dimension in the study of CV perceptions and the interplay of its various gain and loss dimensions. Recent research (e.g., Krystallis, Grunert, de Barcellos, Perrea, & Verbeke, 2012; Perrea et al., 2014) shows that non-Western consumers have different attitudes towards technology than their Western counterparts. The third objective of the paper thus is to study CV perception of products using emerging technologies in two culturally variant contexts, namely a mature Western society accustomed to technological innovations embodied into common everyday foodstuffs, but where technology is often met with skepticism (i.e., the UK); and a developing non-Western society where technology plays a reassuring role regarding consumers' concerns about food safety and quality, but where technological innovations of the type studied here are more rare (i.e., China; Perrea et al., 2014). Given the exploratory nature of the research, four focus group discussions were conducted in total, two in each of the two countries selected for the accomplishment of the paper's aim.

Drawing upon relevant past literature, the next section introduces the CV concept, delineates the theoretical meaning of

its various value and cost dimensions and provides argumentation about its relevance in the present context. Then, a description of the method and tools used for qualitative data collection and subsequent analysis in the two focal countries follows. Finally, the paper discusses the main findings along two interrelated axes: first within each of the two focal countries, in terms of similarities and differences in relation to CV and range and type of its value and cost dimensions between consumers who differing in regards to their attitudes towards technological progress; and second between the two countries, in terms of cross-cultural similarities and differences, emerging from consumers with comparable levels of technological attitudes.

The Consumer Value (CV) framework

The concept of CV in the marketing literature has been generally discussed in the context of exchange or a return for something, introducing the notion of trade-off between (experienced or expected) values or gains received, and costs or sacrifices incurred. Zeithaml synthesized various pre-existing definitions and defined perceived CV as '*the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given*' (Zeithaml, 1988, p.14). Several researchers have since (e.g., Sheth, Newman, & Gross, 1991; Sweeney & Soutar, 2001) developed multidimensional conceptualizations incorporating cognitive and affective aspects in CV definitions. The most prominent of those models is the one by Holbrook (2006), which received empirical support in subsequent research (e.g., Sanchez-Fernandez, Iniesta-Bonillo, & Holbrook, 2009).

Holbrook identified the dimensions of functional, social, hedonic and ethical value. More specifically, functional value is defined as the perceived utility acquired from a product's capacity for physical performance, that is, the ability of a product to fulfill the function for which it is created (Chen, 2010; Orth, McDaniel, Shellhammer, & Lopetcharat, 2004; Vazquez, del Rio, & Iglesias, 2002). Social value is defined as the perceived utility acquired from the association of a person's product choice with the expected choice of a specific social group, leading to an enhancement of this person's social self-concept (Cheng, Lin, & Wang, 2010; Pihlström & Brush, 2008; Sweeney & Soutar, 2001). Hedonic value is defined as the perceived utility acquired when a product is able to trigger changes in consumers' emotional status, or arouse their feelings through stimulation of the senses (Mathwick, Malhotra, & Rigdon, 2001; Orth et al., 2004). Finally, ethical value is the perceived utility acquired when a product enables consumer engagement in ethically desirable practices (Auger, Burke, Devinney, & Louviere, 2003; Freestone & McGoldrick, 2008; Sanchez-Fernandez et al., 2009).

On the other hand, the literature on CV lacks a similarly inclusive, well-recognized typology of costs. In an attempt to be exhaustive regarding all types of costs that have been identified in the extant literature, Papista and Krystallis (2012) proposed a typology of costs in the context of 'green' brands. According to this, the main cost dimensions included price and effort (i.e., transaction costs), which are the most commonly identified types of sacrifice perceived by consumer at any time (Baker, Parasuraman, Grewal, & Voss, 2002; Grewal, Monroe, & Krishnan, 1998; Petrick, 2002; Sirohi, McLaughlin, & Wittink, 1998), as well as evaluation cost and performance risk (i.e., switching costs), which together constitute a barrier to breaking the relationship customers have or are expected to establish with a certain offering (Burnham, Frels, & Mahajan, 2003; Lam, Shankar, Erramilli, & Murthy, 2004; Manoj, Babu, & Sudipta, 2010). Price is considered a key cost dimension of CV in various conceptualizations (e.g., Sweeney & Soutar, 2001; Wu, Chen, Chen, & Cheng, 2013). Effort refers to the physical

¹ High Intensity Ultrasound: (HIU).

² Infusion Heat Treatment: (IHT).

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