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How quality cues and attributes affect consumer quality perception in traditional food? An analysis on grated Parmigiano Reggiano cheese.

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Abstract

Purpose. Literature about quality in traditional food is quite developed, even if for cheese, quality cues and attributes – that is expectations about quality - have not been studied in-depth until now. Indeed, almost all papers analysed only sensorial attributes, and the post-consumption stage and other characteristics – i.e. price – without classifying them. Moreover, grated Parmigiano Reggiano has not been studied until now from a consumer perspective and only two papers have studied some of its sensorial attributes. This paper aims at filling these gaps in literature classifying and undisclosing quality cues and attributes in cheese, looking at how they affect consumer quality perceptions and expectations for grated Parmigiano Reggiano cheese, an Italian traditional food.

Methodology. The empirical analysis is based on a questionnaire administered in hypermarkets where grated Parmigiano Reggiano is purchased. A factorial analysis has been carried out through Stata 12.

Findings. Sensorial attributes studied in previous literature, together with quality certifications, represent a first factor able to affect quality perception, while geographical origin and packaging can be considered as a different set of attributes and, finally, price and brand is the third factor able to influence quality expectations as already found for other food products.

Practical implications. Opportunities given by packaging seem to have been underexploited until now in cheese and above all in Parmigiano Reggiano industry. Moreover, price and brand could play an essential role in both the protection and the valorisation of traditional food. For both of them a more careful management seems needed.

Originality/value. This is the first study looking at quality cues and attributes able to affect quality perception and expectations about cheese making, a study on grated Parmigiano Reggiano. The study, which is the first which classify all cheese attributes following a quality approach – encompassing already studied sensorial and other attributes- opens the way to the application of the Total Quality Food Model (TQFM) also to the cheese domain.

Keywords
Quality cues and attributes; consumer quality perception and expectations; traditional food; sensorial attributes; cheese; grated Parmigiano Reggiano

1. Introduction

Traditional foods can be defined, according to Guerrero et al (2009), looking at four different dimensions "(1) a product frequently consumed over time or associated with specific celebrations or seasons; (2) the focus of strong beliefs about nutritional and sensory characteristics that should be transmitted from one generation to another; (3) the preparation and consumption is specific, in accordance with a gastronomic heritage and finally, (4) must be associated with a certain local area, region, or country" (Boncinelli et al., 2016, p. 144).
Therefore, traditional foods are foods eaten by people for ages and they are part of the culture and tradition of a local area or region (Fao, 2008; Bhaskarachary et al., 2016, Ferguson et al., 2017); they play a role in attributing a "local identity, […]the transfer of cultural heritage for future generations, and the interaction of this heritage with the rest of the world" (Albayrak and Gunes, 2010., p. 555). Moreover, they are normally associated with genuineness and healthiness (Albayrak and Gunes, 2010; Bhaskarachary et al., 2016).
Today traditional foods have to face new market challenges for different reasons (Boncinelli et al., 2016): (1) changing trends in food habits and the factors determining them (Casini *et al.*, 2013); (2), increasing in convenience foods demand (Pieniak *et al.*, 2009); (3) industrial food production keeping rise (Kuznesof *et al.*, 1997); (4) food safety importance and consideration also at a normative and regulation level (Thomé da Cruz and Menasche, 2014).
Due to the importance of traditional foods at different levels and the special moment they live is important to study this subject above all in light of their promotion and protection.
The latter pass from quality and norms and/or rules not only at an agricultural level, as for example the registration as PDO – protection designation of origin – or GI – geographical indication (Albayrak and Gunes, 2010).
Even if some traditional foods have been studied looking at quality cues and attributes, cheese cannot count on well-developed literature, especially for traditional cheeses. In fact, literature about cheese in general develop to a certain extent sensorial attributes analyses – post-consumption sensorial perceptions - which sometimes is completed adding some other attributes without classifying them (i.e. Murray and Delahunty, 2000; Tendero and Bernabeu 2005; Braghieri et al. 2014; Lahne et al. 2014; Barros et al., 2016) – while only three papers, to the best of authors knowledge, analyses quality attributes about cheeses - pre-consumption perceptions and expectations.
The first paper performed a conjoint analysis taking into account nine farmhouse cheeses to understand the attributes consumers prefer in the authors attempt to find the "ideal" product profile (Murphy et al., 2004). The second one studies consumer preferences about cheese and shrimps looking at perceived price, perceived physical appearance, expected eating quality and expected naturalness, in the attempt to understand which role these attributes play in the consumer choices of high-involved respondents, in respect to low-involved respondents (Hansen, 2005). The third one analyses only price, certification and cheese type trying to understand how these attributes affect consumers choices (Tendero and Bernabéu, 2005).
In none of the three above mentioned papers, all quality cues and attributes were studied, nor attributes analysed were classified following a quality perspective. None of these papers focus on traditional cheeses.

Indeed, this paper focuses on quality with the aim of filling these gaps in literature studying cheese quality cues and attributes able to shape consumer preferences and expectations in the domain of traditional foods where Parmigiano Reggiano falls as a PDO. In doing this, we will also provide the "quality frame" making clear which and where sensorial and other attributes already studied can be set and which quality cues and attributes will deserve more attention in future studies on cheese to understand consumer segments.

In the literature it is clear that quality cues can be divided in intrinsic and extrinsic. The first ones can be understood as "part of the physical characteristics of the product"; they are "related to technical specifications, which also involve physiological characteristics" (Bello Acebrón and Calvo Dopico, 2000, p. 230) as already stated by Grunert et al. (2004), Brunsø et al. (2005), Tolosana et al. (2005) and Espejel et al. (2007). Extrinsic quality cues, on the contrary, are "related to the product, but are not physically part of it" (Oude Ophuis and Van Trijp, 1995, p. 178). As a result all cues can be only evaluated before consumption. Moreover, quality attributes can be defined as "functional and psychological benefits or consequences provided by the product" (Bello Acebrón and Calvo Dopico, 2000, p. 231).

To reach the paper aim, an empirical study based on a questionnaire distributed in hypermarkets has been performed and data were elaborated through Stata 12.

Results highlight that sensorial attributes studied in previous literature together with quality certifications represent a first factor able to affect quality perception, while geographical origin and packaging can be considered as a different set of attributes and, finally, price and brand is the third factor able to influence quality expectations as it is the case with other food products (i.e., beef).

The paper starts highlighting the attributes – sensorial and others – studied in cheese literature except from the papers focusing on Parmigiano Reggiano, then a literature review is performed on Parmigiano Reggiano cheese and grated Parmigiano Reggiano. As a first result a frame of correspondence before previous studied attributes and quality cues and attributes is provided. The methodology of the study and results follow. The paper ends with the discussion of the results and the conclusion which highlights the contribution of the paper as well as limitations, implications -both from a theoretical and a managerial point of view- and future avenues of research.

2. Literature review about sensorial attributes in cheese and Parmigiano Reggiano studies

2.1 Sensorial attributes studied for cheese

A literature review was performed looking at papers focusing on cheese, quality cues and attributes, consumer preferences and expectations. Table 1 shows all papers retrieved concerning the subject matter of this paper, except those regarding Parmigiano Reggiano and grated Parmigiano Reggiano which have been analysed in the following paragraph

Table 1 - Sensory attributes and other attributes of cheese

Author	Type of Cheese analyzed	Country	Sensory attributes												Other attributes							
			Colour	Appearance	Texture	Type of Cheese [Mild, Aged…]	Type of milk/Ingredientes	Fat	Salinity	Odour	Flavour/Teste	Aroma	Pasteurisation/Safety	Nutritional information/health	Freshness	Price/kg	Packaging	Geographical origin	Scale of production	Certification	Market's selection	Product information	Brand
Hough et al. (1994)	Grated Reggianito cheese	Argentina	x	x	x						x	x										
Hough et al. (1996)	Grated Reggianito cheese	Argentina		x	x						x	x										
Murray & Delahunty (2000)	Cheddar cheese	Ireland		x	x						x	x					x					
Barcenas et al. (2001)	Traditional Spanish cheeses	Spain			x					x	x											
Murphy et al. (2004)	Farmhouse cheese	Irish	x		x						x		x	x		x	x					
Teng et al. (2004)	Cheese sold at farmers markets	Canada									x		x		x	x		x		x		
Hersleth et al. (2005)	"Norvegia cheese" (5 cheese varieties)	Norway		x	x					x	x	x										
Tendero & Bernabeu (2005)	General cheese	Spain				x										x			x			
Drake et al. (2008)	Mild Cheddar cheese	USA	x		x						x			x		x	x					x
Trobetas et al. (2008)	Grated Graviera	Greek	x														x					
Adanacioglu & Albayram (2012)	Tulum cheese	Turkey			x		x	x	x		x					x		x				
Giraud et al. (2013)	Mladi Sir' cheese	Six western Balkan countries (WBCs)														x	x	x	x			
Braghieri et al. (2014)	Scamorza cheese	Italy		x	x					x	x	x										
Lahne et al. (2014)	Vermont cheese	Vermont		x	x				x	x	x										x	
Barros et al., (2016)	Fresh cheeses (6 cheese varieties)	Brazil		x			x							x		x	x					x
Eldesouky et al. (2016)	General cheese	Spain															x					
Karen et al. (2016)	General cheese (70 cheese varieties)	Irish															x					

Souce: our elaboration

From Table 1 it is clear that the most studied sensorial attributes in literature were colour, appearance, texture, flavour, odour and nutritional value, while among other attributes price, packaging, certifications and geographical identification and brand can be found.

2.2 Sensorial and other attributes in Parmigiano Reggiano cheese literature

Parmigiano Reggiano cheese is an Italian traditional food and it is "the most important typical product in Italian agriculture" (de Roest and Menghi, 2000, p. 439). For this reason, over the years, several authors have studied sensory and other attributes of Parmigiano Reggiano cheese in order to understand the possible relationship between consumer preference and both chemical and sensory features of Parmigiano Reggiano cheese.

Virgili et al. (1994) developed a study to examine the link between fat, taste and odour (sensory attributes) of Parmigiano-Reggiano cheese, and their volatile and non-volatile components. Noël et al. (1996), in their study, analysed the relationships between rheological and sensory parameters of Parmigiano Reggiano cheese focusing on texture (sensory attribute). Zannoni (2010) developed a study on evolution of the sensory characteristics of Parmigiano Reggiano cheese, through an in-depth study looking at both history and literature. In particular, quality dimensions which emerge from the analysis were: colour, texture, odour, aroma (sensory attributes). While previous authors, as mentioned above, focused on technical and chemical aspects of Parmigiano Reggiano cheese, Donadini et al (2013) studied consumer preferences and the hedonic response of consumers in respect to consumption of cheese and beer taken together. Donadini et al (2013) selected four cheeses (Parmigiano-Reggiano, Gorgonzola, Mozzarella, Smoked Provola), of which they examined the following quality dimensions: texture, aroma, flavour/taste (sensory attributes). Jasper et al. (2014), analysed the physicochemical, rheological, and microbiological quality of Parmigiano Reggiano and Grana Padano cheeses, in the Brazil market. The very technical study showed which price level is correlated with moisture, acidity, and texture. Also, Boatto et al. (2016) examined the market of Parmigiano Reggiano cheese, not in Italy but in North America, a market in which in the last decade, increased the exports of Italian Parmigiano Reggiano cheese. The study aimed at analysing the role of quality cues in consumer preferences when purchasing Parmigiano Reggiano cheese. In this paper, quality dimensions examined were: brand, origin, packaging, price (other attributes) and aroma and taste as sensory attributes.

Table 2 shows the papers focusing on Parmigiano Reggiano cheese studies highlighting the most studied attributes and pointing out that attention to other attributes than the sensorial ones only started in the last years, from 2014.

Literature on grated Parmigiano Reggiano cheese developed from 2002 when the consumption of this type of cheese increased and "the official certification body of Parmigiano Reggiano added the sensory analysis to its array of analytical tools" (Zannoni and Hunter, 2013, p. 23). This topic was first analyzed by Zannoni and Hunter (2013, 2015). In the first paper Zannoni and Hunter (2013), verified the validity of the scorecard (21 quantitative-descriptive descriptors and 4 qualitative evaluation descriptors: appearance, smell, texture, and taste) for the grated Parmigiano Reggiano cheese, also focusing on the performance of the sensory panel. In the second research Zannoni and Hunter (2015), in a more technical paper, deepen the topic of grated Parmigiano-Reggiano evaluation scorecard, studying better the relationship between sensory compliance and quantitative descriptors. From Table 3 appears clear that for grated Parmigiano Reggiano only five sensorial attributes were analysed which are the same considered in our study.

Table 2. Sensory attributes and other attributes of Parmigiano Reggiano cheese

Author	Type of Cheese analysed	Country	Sensory attributes												Other attributes							
			Colour	Appearance	Texture	Type of Cheese [Mild, Aged…]	Type of milk/Ingredientes	Fat	Salinity	Odour	Flavour/Teste	Aroma	Pasteurisantion/Safety	Nutritional information/health	Freshness	Price/kg	Packaging	Geographical origin	Scale of production	Certification	Market's selection	Product information	Brand
Virgili et al. (1994)	Parmigiano - Reggiano cheese	Italy						x		x	x												
Noäl et al. (1996)	Parmigiano Reggiano cheese	Italy			x																		
Zannoni (2010)	Parmigiano-Reggiano cheese	Italy	x		x					x		x											
Donadini et al. (2013)	Parmigiano-Reggiano cheese; Gorgonzola; Mozzarella; Smoked Provola	Italy			x						x	x											
Jaster et al. (2014)	Parmigiano Reggiano cheese and Grana Padano cheese	Brazil														x							
Boatto et al. (2016)	Parmigiano-Reggiano cheese	North American									x	x				x	x	x					x

Souce: our elaboration

Table 3. Sensory attributes and other attributes of grated Parmigiano Reggiano cheese

Author	Type of Cheese analysed	Country	Sensory attributes												
			Colour	Appearance	Texture	Type of Cheese [Mild, Aged…]	Type of milk/Ingredientes	Fat	Salinity	Odour	Flavour/Teste	Aroma	Pasteurisantion/Safety	Nutritional information/health	Freshness
Zannoni & Hunter (2013)	Grated Parmigiano-Reggiano cheese	Italy	x	x	x					x		x			
Zannoni & Hunter (2015)	Grated Parmigiano-Reggiano cheese	Italy	x	x	x					x		x			

Souce: our elaboration

3. Quality cues and attributes in cheese

Given the paper aim, it is important to point out that literature about food quality agrees on the fact that consumers quality expectations are based on "quality cues" and "quality attributes". Steenkamp (1990) suggested that consumers use cues to determine the value of the product and that cues can be perceived by consumers through their senses before consumption. Olson (1972) and Richardson et al. (1994) affirmed that "quality cues" are divided into "intrinsic quality cues" and "extrinsic quality cues". Oude Ophuis and Van Trijp (1995) defined "intrinsic quality cues" as "part of the physical product" (p. 178) and "extrinsic quality cues" as stimuli which are "related to the product, but are physically not part of it" (p.178). This definition has been shared by several authors over time as for example: Bello Acebrón and Calvo Dopico, (2000), Grunert et al. (2004), Brunsø et al. (2005), Hansen (2005), Tolosana et al. (2005) and Espejel et al. (2007).

Steenkamp (1989), deepening the topic of quality food, developed a complex model in which he distinguishes the concepts of "quality cues" and "quality attributes". "Quality attributes" can be defined as "benefit-generating product aspects" (Oude Ophuis and Van Trijp, 1995, p. 178) and they are divided into "experience quality attributes" and "credence quality attributes". The first are product properties that can be evaluated after the consumption, while "credence quality attributes" are always product properties but they cannot be evaluated "even after normal use for a long time"(Oude Ophuis and Van Trijp, 1995, p. 178). Therefore consumers, when purchasing, base their choices on quality cues (Steenkamp, 1989, 1990), while hoping quality attributes will meet their expectations.

Starting from the literature review performed above about grated Parmigiano Reggiano Table 4 shows the five sensorial attributes studied by Zannoni and Hunter (2013, 2015) as they were classified following the quality approach issued by Steenkamp (1989, 1990) by the authors of this paper and propose to add other attributes encompassed in the same model to study perceptions and expectations of consumers before consuming grated Parmigiano Reggiano.

Table 4. Intrinsic/extrinsic quality cues and quality attributes of grated Parmigiano Reggiano cheese

Attributes of cheese	Variables	Quality dimensions
Sensory attributes	Colour	Intrinsic quality cues
	Appaerance	
	Texture	
	Odour	Quality attributes
	Flavour	
Other attributes	Geographical origin	Extrinsic quality cues
	Brand	
	Quality certification	
	Price	
	Packaging	

Source: our elaboration

4. Research methodology

The research, developed in May 2017, was carried out in the retailing sector in central Italy. The difficulty in clearly identifying the exact population of the hypermarket customers led to the adoption of a sampling scheme of non-probabilistic kind and in particular to a sampling of accidental type, as widely occurs in market research (Bracalente et al., 2009).

The sample of respondents is composed of 363 individuals. The data collection was carried out inside the hypermarket by means of a questionnaire which was either self-compiled or compiled thanks to a direct interview. The whole phase of data collection was carried out during a week and in different time slots within the day, so to ensure to reach the wider variety of consumers to perform a better data collection.

As mentioned above, the survey instrument was the questionnaire, where the following three main areas were analyzed:

1. Customer profile: containing information on socio-demographic features;
2. Quality dimensions: intrinsic quality cues, and extrinsic quality cues and quality attributes;
3. Customer purchase and behavior: containing information on consumption of grated Parmigiano Reggiano cheese as frequency of purchase, etc.

The scale used to measure the customer perception of quality was the Likert-type, with a score, assigned by the respondents, between 1 and 7, where 7 expresses the maximum positive evaluation and 1 the negative (Likert, 1932).

The descriptive analysis as wells the multivariate analysis were performed using the statistical program "STATA Statistics/Data Analysis" 12 (www.stata.com).

5. Data analysis and results

4.1 Factor Analysis

The first step of research focused on the analysis of quality dimensions which influenced grated Parmigiano Reggiano purchase decisions. Table 5 shows that, among sensory attributes/quality attributes, flavour (average value of 6.01) and odour (average value of 5.20) are the most important, while, geographical origin (average value of 6.37) and price (average value of 5.32) are the quality dimensions most important among extrinsic quality cues. The values of the standard deviation show that the data dispersion around the average value is relatively small, thus attesting the homogeneity of the answers given by respondents.

The reliability of variables has been studied by Cronbach α test, which evaluates internal consistency among variables (Namukasa, 2013). According to Hair at al. (2006), a sample adequate good internal consistency when Cronbach α coefficient is over 0.6, and therefore it can be stated that the sample of this study shows a good internal consistency. In order to understand if the sample was appropriate to perform the factor analysis, the Kaiser-Meyer-Olkin (KMO) test has been run. A KMO value greater than 0.50 (Kaiser, 1974; Hair et al., 2006; Santouridis and Trivellas, 2010) indicates that a factorial analysis can be performed and table 5 shows the factor analysis performed. Finally, correlation test has been used in order to observe the level of interdependence among variables (see Appendix 1).

Table 5. Descriptive statistics of quality dimensions

Attributes of cheese	Quality dimensions	Variables	Obs	Mean	Std. Dev.	Min	Max	Cronbach's alpha	KMO
Sensory attributes	Intrinsic quality cues	Colour	333	4.89	1.94	1	7	0.8862	0.9010
		Appaerance	329	4.15	2.00	1	7	0.8892	0.8502
		Texture	329	4.70	1.81	1	7	0.8847	0.8636
	Quality attributes	Odour	330	5.20	1.90	1	7	0.8877	0.8577
		Flavour	333	6.01	1.76	1	7	0.8879	0.8072
Other attributes	Extrinsic quality cues	Geographical origin	351	6.37	1.19	1	7	0.8987	0.6637
		Brand	329	4.59	1.93	1	7	0.8883	0.7173
		Quality certification	328	4.34	1.88	1	7	0.8868	0.7166
		Price	330	5.32	1.94	1	7	0.8952	0.7633
		Packaging	334	4.25	1.72	1	7	0.9017	0.4720
		Total scale/Overall						0.8963	0.8032

Source: our elaboration on direct survey

Factorial analysis applies to a set of data collected through, for example, questionnaires and its primary aim is to reduce the number of the observed variables set through factor (or latent variables) that are less numerous than the original variables and explain all correlations of the variables grouped (Bracalente et al., 2009; Barbaranelli, 2012).

Table 6 shows the matrix of main components (eigenvectors) of the factors and the first three of them have eigenvalues greater than 1. Moreover, they encompass the 66.8% of the information contained in the original data set. For this reason, the first three factors were considered to identify the new variables.

Table 6. Matrix of main components (eigenvalues)

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	4.296	3.065	0.430	0.430
Factor2	1.231	0.081	0.123	0.553
Factor3	1.150	0.193	0.115	0.668
Factor4	0.956	0.284	0.096	0.763
Factor5	0.672	0.153	0.067	0.831
Factor6	0.519	0.137	0.052	0.883
Factor7	0.382	0.062	0.038	0.921
Factor8	0.320	0.076	0.032	0.953
Factor9	0.244	0.015	0.024	0.977
Factor10	0.229	.	0.023	1.000

Source: our elaboration on the data set

The factor interpretation was achieved by considering the so-called saturation matrix (Table 7) where correlation between the original variables and the factors were identified. Each variable is associated to others according to the highest correlation factor, and then this factor is interpreted according to the associated variables.

Table 7. Saturation matrix (factor loadings)

Quality dimensions	Items	Factor1	Factor2	Factor3	Uniqueness
Intrinsic quality cues	Colour	**0.8011**	-0.1548	0.1628	0.3077
	Appaerance	**0.7126**	-0.0401	0.2425	0.4318
Quality attributes	Texture	**0.7888**	-0.1581	0.2579	0.2862
	Odour	**0.7686**	-0.3249	0.2420	0.2451
	Flavour	**0.7940**	-0.3037	-0.0506	0.2748
Extrinsic quality cues	Quality certification	**0.6215**	0.5447	-0.0986	0.3073
Extrinsic quality cues	Geographical origin	0.2822	**0.3553**	-0.1333	0.7764
	Packaging	0.1867	**0.6305**	0.5850	0.2254
Extrinsic quality cues	Price	0.5900	-0.0897	**0.5934**	0.2917
	Brand	-0.4636	0.3925	**0.6743**	0.1763

Source: our elaboration on the data set

Table 7 shows that factor1 groups the variables related to all intrinsic quality cues and quality attributes and one variable of the extrinsic quality cues (i.e., Quality certification). Factor 2, on the other hand, synthesises the variables related to extrinsic quality cues (i.e., Geographical origin and Packaging) and factor 3 synthesizes the variables related to extrinsic quality cues (i.e., Brand and Price). Through the performed factor analysis, the number of variables were reduced from 10 to 3. Table 8] shows the new variables.

Table 8. New Variables

Measures	New Variables Code	New Variables
Intrinsic quality cues Quality attributes Extrinsic quality cues	FA1	Intrinsic/extrinsic quality cues and quality attributes
Extrinsic quality cues	FA2	Geographical origin and Packaging
Extrinsic quality cues	FA3	Price and Brand

Source: our elaboration on the data set

6. Discussion

The performed cluster analysis shows interesting results, in that it partially confirms previous studies made from a sensorial perspective, adding the most important factors to assume a quality perspective.

As literature on Parmigiano Reggiano granted and not and on cheese in general, also in the analysis performed in this paper, all sensorial attributes can be grouped in a sole factor – for grated Parmigiano Reggiano indeed only sensorial attributes were studied. These results confirm previous literature and above all what found for Italian consumers. Indeed, Mascarello et al. (2015) found that for Italian consumer to asses quality food the most important factors are sensorial attributes. These results, although found in Italy, have been also confirmed for other countries' consumers – i.e. Russia (Honkanen and Frewer, 2009). These same results were found also for red wine, studying quality perception in food in Spain (Verdú Jover et al., 2004).

What is new in this study is that together with investigated sensorial attributes quality certification among which falls PDO – signaling that is a traditional food – is perceived as strictly related to sensorial attributes. This insight is supported by Elortondo et al. (2007) study focusing on quality certifications who stated that to get the certification an in particular the PDO certificate food has to follow "typical sensory characteristics" (p. 425). Moreover, they stated that sensory analysis should become one of the most important tools in order to maintain quality and protect DPO foods as also previously pointed out by Bertozzi and Panari (1993) and Elortondo et al. (1999). On this issue it has also to be said that taking about Parmigiano Reggiano is always talking about a DPO which is synonymous for consumer of high quality features.

To explain results about the second factor it is important to highlight that "packaging and labelling are important factors that affect consumer product perception and intention to purchase" (Deliza and MacFie, 1996; Carneiro et al., 2005; Enneking et al., 2007; Abadio-Finco et al., 2010; Lagerkvist, 2013, Gatti et al., 2014; Barros et al., 2016, p. 448). Packaging has changed its role over time, especially in food due to the changed consumers life-style and the rise of self-service purchasing process (Kuvykaite et al., 2009; Eldesouky et al., 2016). Packaging has an essential communication role above all at the food point of purchase (Silayoi and Speece, 2007) and for an DPO product to make clear the geographical origin. Indeed, original DPO can be only produced in some regions and/or areas overall the word and consumers can easily check among others this information on Parmigiano Reggiano packaging. Moreover, according to O'Callaghan and Kerry (2016) packaging has to communicate that cheese has been realised following specific production rules and therefore shows a standard quality, the one required for DPO products realised following the *ad hoc* disciplinary.

Price and brand were already studied for Italian food consumers finding that price and brand are linked together in influencing consumer perceptions (Mascarello et al.,2015). Indeed, price and brand together were not so studied for Parmigiano Reggiano nor for cheese in general. However, looking to other food products as beef it has been found that consumers focus on brand when they are not so familiar with beef products, which leads to hesitation at the moment of purchase (Bredahl, 2004; Banović et al., 2010, 2012). Also price as brand is used by consumers as predictive of beef quality in the same circumstances (Bello Acebrón and Calvo Dopico, (2000; Tolosana et al., 2005).

7. Conclusion

This paper makes some contributions to both cheese literature, in particular Parmigiano Reggiano, and traditional foods: (1) sensorial attributes as well as other attributes already studied in literature about cheese in general and Parmigiano Reggiano in particular were classified and studied assuming a quality perspective; (2) literature on other attributes about cheese has been enriched pointing out which non-sensorial features play a role in shaping expectations and perceptions of consumers; (3) attributes important in shaping expectations and perception about traditional food have been studied for the first time, looking at their interplay; (4) Parmigiano Reggiano and above all grated Parmigiano Reggiano has been studied including not only sensorial attributes.

Apart from the theoretical implications which have been briefly recalled above, managerial implications seems interesting. In the cheese domain features other than sensorial attributes should be taken into account from producers which seem to have miss to catch the opportunities coming from packaging. The latter should be better studied in order to appear more appealing to consumers and also to include all information, besides the ones mandatory

for laws and norms, to give consumers the searched information in order to better shape their perceptions and expectations. This seems true also for simple information as the origin of the product even if it is PDO and therefore only produced in some regions and/or areas all over the world. Moreover, also brand and price play a role on perceptions and expectations about traditional food and therefore they should be managed carefully not considering them as well-known or expected. They can play an essential role in both the protection and the valorisation of traditional food even if it is a well-known cheese as Parmigiano Reggiano.

This study, apart from the contributions, has some limitations to be found above all in the sample which is a non-probabilistic one and which only pertains to a small Italian area. Future avenues of research should encompass to widen the survey trying to include consumers living in different Italian regions as well as study more in-depth perceptions and expectations of consumers identifying the relevant clusters. Identifying the latter it should be possible for firms to understand which innovation and/or changes could be introduced for this traditional food and, at a more general level, which attributes are relevant in cheese industry for different consumers.

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Appendix

Correlation matrix (obs=309)

	Colour	Appaerance	Odour	Texture	Flavour	Geographical origin	Brand	Quality certification	Price	Packaging
Colour	1.00									
Appaerance	0.56	1.00								
Odour	0.62	0.51	1.00							
Texture	0.60	0.60	0.64	1.00						
Flavour	0.64	0.40	0.68	0.60	1.00					
Geographical origin	0.20	0.06	0.13	0.17	0.17	1.00				
Brand	0.41	0.39	0.27	0.38	0.39	0.26	1.00			
Quality certification	0.34	0.39	0.31	0.40	0.30	0.12	0.65	1.00		
Price	0.37	0.30	0.33	0.26	0.54	0.13	0.52	0.30	1.00	
Packaging	0.15	0.15	0.09	0.11	0.04	0.43	0.06	0.29	-0.09	1.00

Source: our elaboration on direct survey