Study on the Influence of Fresh White Cheese Packaging Design Variables on Users' Perception

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Abstract Packaging design is a decisive factor in the perception that users have of a product before its consumption, so it is key to know precisely which design is the most suitable for the message that brands wish to convey. This research aims to study the influence of two variables, serving suggestion and label colour, on users' perception of products which, by themselves, do not have high aesthetic or taste appeal. The case of fresh white cheese was studied due to its high consumption in Spain and because it is usually accompanied by other products during consumption. Two hundred and forty seven people took part in a survey in which sensory attributes and the willingness to buy were analysed through the presentation of 8 different packaging proposals which designs were the result of the combination of 5 types of serving suggestions and 4 label colours. The results show that the serving suggestion is strongly related to both the users' sensory expectations and the appropriate time of day for consumption, and that the colour of the label influences the perceived fresh white cheese category.

Keywords Serving suggestion · Packaging · Perception · Label · Fresh white cheese

1 Introduction

Outer appearance of food packaging is a key element in attracting consumers' attention (Silayoi and Speece 2007) and stimulating purchase (Bloch 1995; Tuorila and Pangborn 1988). As much as 70% of all buying decisions are made in-store,

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even in those cases of planned shopping (Inman et al. 2013). Hence, packaging is not only used to hold and transport the product, but also for promoting it (Kauppinen-Räisänen 2014).

There is a wealth of scientific literature that shows the influence that several packaging cues such as shape (Rebollar et al. 2012; Becker et al. 2011), material (Mutsikiwa and Marumbwa 2013), or label (Charters et al. 1999; Orth et al. 2009) have on consumers. This study aims to shed light on how two of the main packaging cues, the product's image and packaging colour, influence consumers' perception and expectations.

Packages are often designed in a way that help the user get an accurate idea about what the product contained is really like. The use of transparent materials or product images is rather common. There is in fact good evidence that displaying a picture in the packaging has an impact on consumers. Liao et al. (2015) conducted an experiment in which consumer emotional response was measured when exposed to food packages labelled with images (product-related and non-related). Others have observed how the images displayed in the packaging influence consumers' willingness to buy (Bone and France 2001) or alter the sensory perception of the product (Mizutani et al. 2010).

To date, much emphasis has been placed on the emotional (Bone and France 2001; Liao et al. 2015; Mizutani et al. 2010) or communicative (Underwood et al. 2001; Underwood and Klein 2002; Miraballes et al. 2014) level of the image, considering it as a whole. However, an image can be divided into the different individual elements of which it is composed (e.g. other food products, pictures of people or props) and their influence on the consumer has never been isolated and studied.

Likewise, serving suggestions are a design tool widely used in food packaging in which the manufacturer displays the product ready for consumption, accompanied by other foods or props (usually dishes and/or cutlery), seeking to make the product more appetizing and/or informing consumers about how and when can it be consumed. Nevertheless, this has attracted little scientific attention to date. Therefore, this paper aims to fill this gap by studying the influence on the consumer expectations of the garnishes displayed in the serving suggestion.

Another major packaging design cue is colour. As in the case of the images displayed in the packaging, the background colour of the packaging has a strong impact on consumers, (Rebollar et al. 2012; Ares and Deliza 2010; Mohebbi 2014) so it is used as a priority marketing tool (Singh 2006; Labrecque and Milne 2012).

Colour has been studied in this context from several different angles. Commonly, research has been focused on the way colour influences consumer sensory expectations (Gollety and Guichard 2011; Kauppinen-Räisänen 2014), the consumer's experience (Becker et al. 2011; Smets and Overbeeke 1995) and even the consumer experiential expectations (Rebollar et al. 2012).

However, it is more difficult to find papers that analyse how consumers identify the category of the product based on its packaging colour. Some products (e.g. milk) use a colour code that allows the consumer to identify the intrinsic characteristics of the product (also distinguishing it from other similar products offered by the same brand). Despite being a communication tool widely used by brands, there is not any established chromatic code, so each brand choses the colour of their packages at its own discretion.

According to Grossman and Wisenblit (1999), consumers prefer some colours over others to identify a given product because they learn through association (their past experiences) that some colours are more suitable than others for some product categories. In the same line Piqueras-Fiszman et al. (2012) suggest that using the colour of a given food in its packaging will ease the association between package colour and product taste for the consumer.

However, there is a lack of studies that analyse how colour can be used to effectively identify products of the same family from the same brand. This research seeks to make advances in this area by analysing the case of a common product in Spain, fresh white cheese (*queso fresco*).

Fresh white cheese has been chosen for this study since, according to the Spanish Ministry of Agriculture, Food and Environment (MAGRAMA n.d.), this type of cheese has the highest consumption in Spanish households (29.9% of the total in 2013). Also, it is purchased mainly in supermarkets and hypermarkets, for this reason consumers are accustomed to purchasing this cheese as a packaged product.

From among all the categories of fresh white cheese on the Spanish market, this study focuses on those obtained from pasteurized milk (sheep, goat, or cow): a soft white cheese, cylindrical conical or prismatic, without crust and with a soft texture. It is very common for fresh white cheese packaging to show a serving suggestion with garnishes and a chromatic code for distinguishing between different product categories.

Henceforth this research has a double objective. Firstly, it aims to analyse the influence the foods used to garnish the cheese in the serving suggestion have on:

- Consumer expectations with respect to the attributes of the fresh white cheese,
- The time of day consumers believe most suitable for its consumption,
- Consumer willingness to buy.

Secondly, it aims to analyse the influence the colour of the packaging has on:

- The category of fresh white cheese the consumer thinks is contained inside the packaging,
- Consumer willingness to buy.

2 Materials and Methods

2.1 Participants

Some 247 people participated in this study during October and November 2014 (158 females). The mean age was 27.7 with a standard deviation of 10.4 years. With regard to consumption, 45% admitted consuming fresh white cheese from time to time, 24% on rare occasions, 21% frequently and the remaining 10% admitted never consuming fresh white cheese.

2.2 Procedure

The experiment was conducted online with an online survey provider, SurveyMonkey®. Participants were recruited on a voluntary basis on social media. The survey was responded to anonymously and without any time limit for its completion. During the course of the survey, participants were shown a series of photorealistic images in which the different fresh white cheese packages designed for this research were displayed. Each image was displayed with a questionnaire for its assessment. All survey participants saw the same packages shown in random order.

2.3 Stimuli

2.3.1 Serving Suggestion

This experiment was designed with five different packages in which the only variant was the garnishes used in the serving suggestion, which represented the foods most commonly consumed with fresh white cheese: two savoury alternatives (salad and sliced turkey), two sweet alternatives (fruit and quince cheese) and one package displaying just the fresh white cheese (without any garnish).

The fresh white cheese was the central item in the composition on each package with an identical position and size, with the garnish to the left. The other variables were identical. Care was taken to ensure that the relationship between the garnish and the fresh white cheese was consistent in all the packages. Hence, the packages were designed so that the space occupied by the garnish was similar on all of the packages. The five packages were designed over a blue background colour to prevent the interference between variables.

The five serving suggestion stimuli can be seen in Fig. 1.

Fig. 1 Visual stimuli used in the serving suggestion assessment

Fig. 2 Visual stimuli used in the packaging colour assessment

2.3.2 Packaging Colour

Four visual stimuli were designed to study the packaging colour, imitating the colours most commonly used in fresh white cheese packaging: blue, pink, green and white.

For these stimuli the only change is the background colour of the composition. The other variables were identical. The four packages were designed with a fruit garnish to prevent the interference between variables.

The four packaging colour stimuli can be seen in Fig. 2.

The eight visual stimuli were designed by imitating four-serving fresh white cheese packages. The packaging has a cardboard wrapping in which the textual and pictorial information is displayed. The wrapping was designed with regard to the position and the size of all the graphic elements displayed on commercial packages. The graphic elements displayed are the description of the product (the words fresh white cheese, *queso fresco* in Spanish), the brand (a fictitious one—*Torre blanca*, White tower—was created to prevent associations with real brands), the nutritional information and the product quantity (identical on all packages) and the serving suggestion.

The photorealistic mock-ups used as visual stimuli were created with the software Adobe Photoshop CS5 and Keyshot 4. The product pictures displayed on all of the packages were taken by the research team using natural products.

2.4 Measurements

The survey was divided into three sections: control questions to identify the participants (age, gender, and education), the presentation of the packages to be analysed and a survey related to the study variable.

Each participant assessed different factors for each of the eight packages, depending on whether it was a visual stimulus of the serving suggestion variable or it was a visual stimulus of the packaging colour variable. The list of the assessed cues for each assessment can be seen in Tables 1 and 2 respectively.

2.4.1 Serving Suggestion

Participants were asked to assess the four product attributes with a Likert-7 scale (1 being totally disagree and 7 being totally agree) and to pick the ideal time for consumption for each of the eight packaging alternatives. They were allowed to leave the questions blank if they wished to. A Likert-7 scale was also used to assess their willingness to buy (1 being I'd never buy it and 7 being I'd be perfectly willing to do so).

Participants were told that in each one of the eight packages the product quantity and the price were identical (although price was not revealed).

2.4.2 Packaging Colour

Participants were asked to pick which one of the four categories displayed they thought was contained in each package. Their willingness to buy was assessed as in the previous case using a Likert-7 scale (1 being I'd never buy it and 7 being I'd be perfectly willing to do so).

Table 1 Assessed cues for the serving suggestion variable

Product attributes	Time of consumption	Willingness
Sweet	Breakfast	Willingness to buy
Savoury	Lunch	
Healthy	Dinner	
Strong flavour	In-between meals	
	At any time	

Table 2 Assessed cues for the packaging colour variable

Fresh white cheese categories	Willingness
Natural	Willingness to buy
Low-cal	
Low salt	
No response	

As above, participants were told that in each one of the eight packages the product quantity and the price were identical (although price was not revealed).

2.5 Data Analysis

An ANOVA analysis of variance was used to analyse the data of the attributes and the willingness to buy. In doing so, each attribute was analysed individually and it was possible to know if there was a statistical difference between the means of the series of the results.

For the analysis of the data from the ideal time for consumption and the category of fresh white cheese that is believed to be associated with each package colour, a correspondence analysis was performed. By elaborating performing a contingency table, a Cartesian diagram was constructed. The Cartesian diagram was based on the association between the analysed variables analysed. The proximity between the plotted points is related to the level of association between the variables.

3 Results

3.1 Influence of the Serving Suggestion on Product Attributes Expectation

The four product attributes assessed in the serving suggestion study gave statistically significant values. Nonetheless, the results show that some garnishes have a stronger influence than others, the sharpest contrast being between *Sweet* and *Savoury*.

The ANOVA results can be seen in Fig. 3.

Regarding the *Sweet* attribute there is a marked difference between the garnishes of fruit and quince cheese and the others, quince cheese being the garnish which raises the sweetness expectation the most. The fresh white cheese without garnish is perceived as not very sweet, just above salad and sliced turkey.

In contrast, in the *Savoury* attribute a marked difference can be observed between the salad and the sliced turkey examples and the others, which are, contrary to above, the garnishes which raise higher expectations. The sliced turkey garnish shows the highest value and the quince cheese garnish the lowest.

Concerning the *Healthy* attribute, the five packaging alternatives get high values, with quince cheese obtaining the lowest value.

With the *Strong flavour* attribute, the salad and quince cheese garnishes elicit higher expectations, whereas the fresh white cheese without garnish is perceived as being the tasteless.

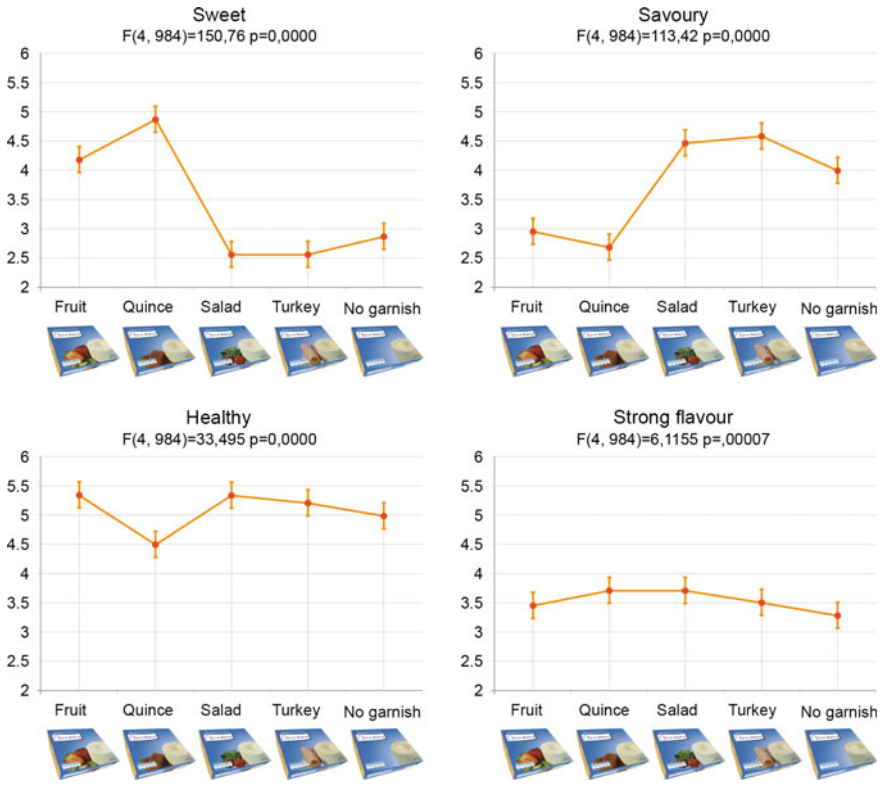

Fig. 3 ANOVA results of serving suggestion attributes

3.2 *Influence of Serving Suggestion on Time of Consumption*

A correspondence analysis that can be seen in Fig. 4 was conducted to analyse the influence of the serving suggestion on the time of consumption. The Chi-square association was significant (χ^2 = 345, *p*-value <0.0001).

The graph shows that the package displaying the salad garnish has a strong link with the consumption at *Lunch*, while the package where there is no garnish is clearly related to consumption *At any time*. However, it can also be seen how the other three package alternatives do not present a clear relationship with any particular time of consumption.

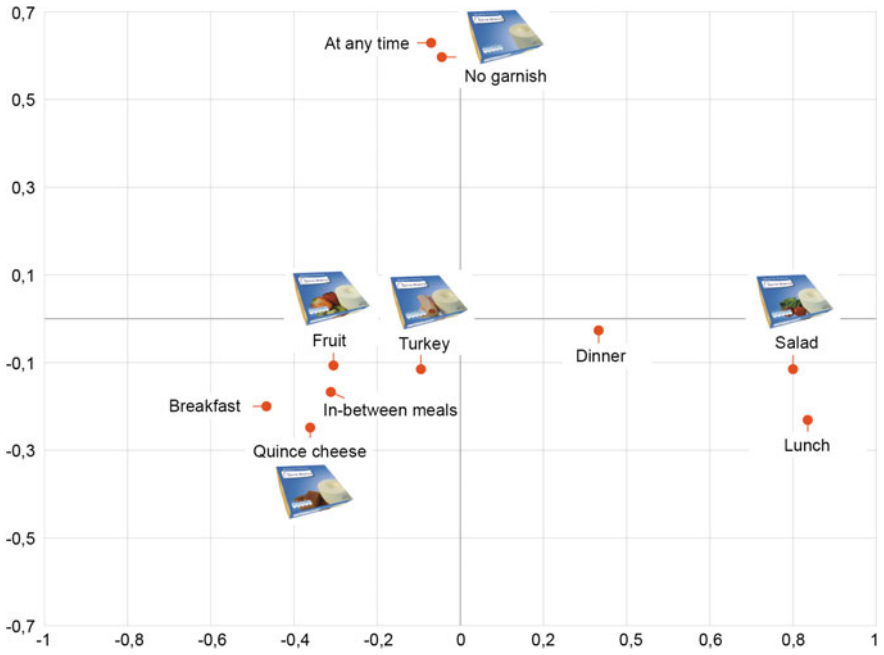

Fig. 4 Correspondence analysis for the serving suggestion variable

3.3 *Influence of Packaging Colour on Product Category Expectation*

A correspondence analysis that can be seen in Fig. 5 was conducted to analyse the influence of the packaging colour on product category expectation. The Chi-square association was significant (χ^2 = 103.36, *p*-value <0.0001).

The graph shows a link between the pink background and the *Low-cal* category of fresh white cheese. However, there are not clear relations between the other colours and the other fresh white cheese categories.

3.4 *Influence of the Serving Suggestion and the Packaging Colour on the Willingness to Buy*

The values obtained in the ANOVA analysis performed that can be seen in Fig. 6 gave statistically significant values. The blue packaging garnished with salad obtained the highest willingness to buy with a value of 4.54. On the other hand, the

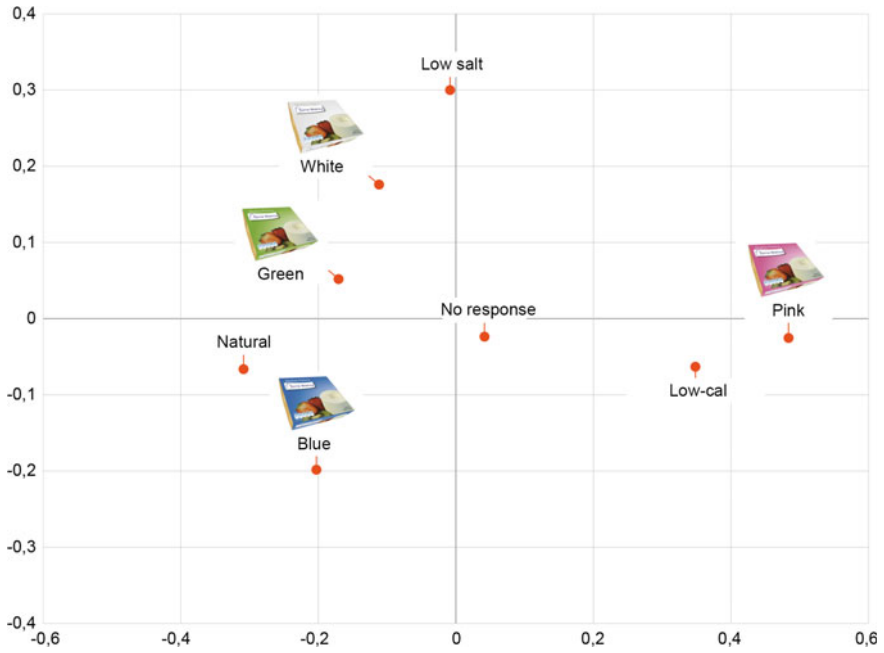

Fig. 5 Correspondence analysis for the packaging colour variable

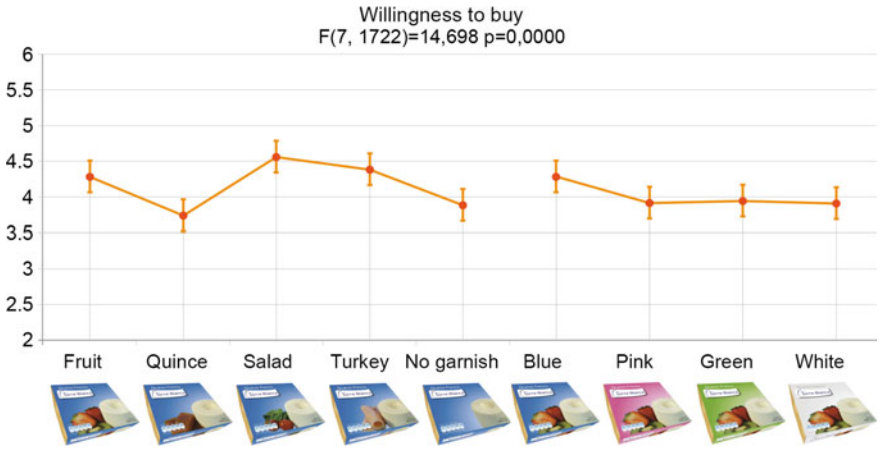

Fig. 6 Willingness to buy

lowest willingness to buy was elicited by the blue packaging garnished with quince cheese, with a value of 3.73.

In Fig. 6, the blue packaging garnished with fruit is displayed twice as a stimulus found in both experiments.

4 Discussion and Conclusion

The results show how the choice of the garnish displayed in the serving suggestion of fresh white cheese packages determines consumer expectations with respect to the attributes of the product.

The results show how consumers extrapolate the attributes of the garnishes on the cheese itself. Thus, one can see how the sweet garnishes (especially quince cheese, the sweetest of the garnishes) cause the cheese to be perceived as sweeter, and how the savoury garnishes raise the expectation that the cheese will be saltier.

The other attributes tested on the experiment, *Healthy* and *Strong flavour*, show more subtle differences depending on the serving suggestion displayed. In the case of the *Healthy* attribute, the packaging garnished with quince cheese stands out negatively, probably due to the association the consumer makes with a high-sugar and, thus, unhealthy diet. The consumer expects the fresh white cheese to be almost tasteless, so in the case of the attribute *Strong flavour* the values obtained are rather low. However, it is possible to see subtle differences depending on the serving suggestion displayed: the packages garnished with salad and with quince cheese are the ones with the higher values and unsurprisingly the ungarnished package has the lowest value.

The results also show that the serving suggestion influences the ideal time for consumption that is perceived by the consumer. Thus, the existent link between the salad garnish with the *Lunch* time and the strong link between the package without garnish and consumption *At any time* during the day are clearly visible. This provides robust results since the lack of a garnish means that no other information but that provided by the cheese itself is being sent to the consumer.

The negative bias on consumer expectation elicited by the sweeter garnishes is also visible in their willingness to buy. Regarding the serving suggestion, the package garnished with quince cheese and the package garnished with fruit (along with the package without garnish, probably due to the product's lack of attractiveness) are the serving suggestions with a lower willingness to buy.

The results also show the influence that the package colour has on both the identification of the fresh white cheese category and willingness to buy. With regard to the product category, a strong link between the pink package and the *Low-cal* category can be seen. Conversely, the blue package is the option with the highest willingness to buy. This is in all probability due to the pre-eminence of that colour in the fresh white cheese packaging market and the consequent consumer habituation to it.

The results obtained in this research therefore highlight how product communication and willingness to buy are affected by packaging design, which undoubtedly determines a product's chances for success on the market.

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