International Journal of Innovative Studies in Sciences and Engineering Technology (IJISSET)

ISSN 2455-4863 (Online) **www.ijisset.org** *Volume: 4 Issue: 2 | February 2018*

Can we Judge a Beer by Its Bottle? Discovering an Emotional Lexicon for Kansei Engineering

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Abstract: *The complexity and competitiveness of today's markets forces marketers to be more imaginative in order to satisfy consumer needs and expectations. In this sense, the process of purchasing acquires greater importance to the detriment of the product functional characteristics. As a consequence, an increasing interest in the study of the impact of emotions on food choice has been observed during the last decades. Within this framework, Kansei Engineering (KE) is a novel methodology that comes from the field of Industrial Design and has been hardly applied to food. This method requires the definition of a space of properties and a semantic space for the product itself. The objective of this paper is to define both spaces for beer packaging and specifically for beer bottles. We aim to identify the most influential packaging attributes in consumer choice and the positive and negative emotions experienced by consumers from these bottles. The data was collected through group interviews and for the emotional terms collection we used a pre-defined lexicon (EsSense Profile®). As a result, we state the most relevant attributes in the consumer choice of beer and propose an emotional lexicon adapted to beer packaging.*

Keywords: *Kansei Engineering, Emotional Design, Beer, Packaging, EsSense Profile®*

1. INTRODUCTION

Responding consumers' needs and expectations is a continuous challenge for both marketers and food researchers. Emotional marketing is fairly a new science, and in the last decades, an increased interest on the study of the impact of emotions on food choice has been observed. In this line, different works have studied the influence of general mood on the quantity or quality of food intake (Van Strien *et al*., 2013, Gardner *et al*., 2014). Other studies have focused on finding associations of particular emotions with particular foods (Thomson *et al*., 2010, Ng *et al*., 2013).

What is more infrequent, at least in the food context, is to connect the study of emotions with the field of design. In the food industry, the packaging design is particularly relevant for the product choice. Consumers feel emotions, directly related to the package's attributes (colour, shape, design, etc.), and these emotions influence food purchase (Becker *et al*., 2011). Affective design seeks to incorporate the consumer's emotions into the product design. It is a discipline with a certain progress in general marketing, but still little explored in food marketing. Within affective design, diverse methodologies are used to relate the product attributes with consumer emotions. Among them, Kansei Engineering (KE) (Nagamachi, 1995) is a recent technology that comes from the ergonomic design field. This methodology requires a prior definition of the product attributes which in terms of Kansei Engineering is called the *space of product properties*, and the potential consumer's feeling about the product in terms of ergonomic and psychological estimation, that is, the *semantic space*.

In this work, we use KE with a two-fold objective: firstly, we will determine which packaging attributes are the most influential in the consumer choice of a specific product, beer bottles; secondly, we aim to identify the positive and negative emotions experienced by consumers from the beer bottles with the final objective of establishing a specific emotional scale to evaluate beer packaging. This double aim is a fundamental prerequisite for the most advanced quantitative phases of KE.

The work is structured as follow: first, we introduce the theoretical framework that supports our work; second, we explain the data collection which is based on focus group interviews and a validated scale for the measurement of emotions, that is, the EsSence Profile ®. In the result section we propose the space of properties and the semantic space for beer bottles. Finally, the main conclusions and recommendations are drawn.

2. THEORETICAL FRAMEWORK

2.1 Influential attributes in food choice

One of the traditional conceptual models for explaining food consumer behaviour distinguishes between the

consumer decision process and the factors that influence this decision process (Engel *et al*., 1968). The model has 5 phases: need recognition, information search, evaluation of alternatives, choice and post-purchase behaviour. The factors influencing the decision process are related to the individual who makes the choice and the food itself, the environment, and so on.

Our research focuses on the *pre-purchase* or food choice phase, in which, according to the Total Food Quality Model (FQM) developed by Grunert *et al*. (1996,) quality expectations are formed from intrinsic and extrinsic signals. This dichotomy of quality signals is based on the traditional classification of product attributes into extrinsic and intrinsic cues, initially proposed by Olson and Jacoby (1972). The *intrinsic attributes* are related to perception factors (associated with the senses of taste, smell and touch) and they represent the food characteristics such as chemical components and physical structures that could be measured through objective tests. *Extrinsic attributes* are connected to cognitive factors associated with the sight and hearing senses and they are related to product presentation (serving on a plate, packaging), marketing (advertising), price, manufacturer, calorie content, etc. These factors can be modified to get consumer satisfaction (Ikeda, 2004).

The product packaging is an extrinsic attribute. Its design is vital because the shape, colour and type of material will be the first visual contact with the consumer, and therefore, crucial in the product choice (Chandon *et al*., 2007). The packaging design is a key factor in the product perception before consumption, and therefore, it will be fundamental that the image and values projected by the packaging match faithfully with those that the company represents and tries to communicate.

There are many attributes directly related to the packaging and consumer choice: the type of material (Marsh and Bugusu, 2007), the shape of the packaging and the label information (Barber and Almanza, 2007, Yang and Raghubir, 2005), the packaging size (Draskovic, 2010, Koutsimanis *et al*., 2012), the packaging colour (Garber *et al*., 2001; Venter *et al*., 2011,) or a combination of them (Ares and Deliza, 2010, Puyares *et al*., 2010, Rebollar *et al*., 2011).

The importance of label shape and colour is supported by different studies since it directly influences the product sensory perception and therefore the purchase choice. In this sense, some studies found that the label and colour shape are more relevant than the bottle shape itself (Lidón *et al*., 2014, Raghubir and Greenleaf, 2006).

To sum up, packaging and its design elements exert influence on consumer product choice, and this influence is in turn conditioned by the emotions aroused by packaging elements. Affective design is concerned with studying the relationship between packaging design and emotions.

2.2 The emotions in Food Marketing

For many decades, emotions have been an important research line in various academic disciplines, i.e., psychology, neurology, endocrinology, history and sociology, but they are also an important research topic in marketing and consumer behaviour since they influence information processing, mediate responses to persuasive appeals, measure the effects of marketing stimuli, initiate goal setting, enact goal-directed behaviours and serve as ends and measures of consumer welfare (Bagozzi *et al.*, 1999).

Emotions are defined as responses to a stimulus, usually intense and lasting, especially when there is a memory of past emotions that have been stored in the memory and retrieved at the time of exposure (Cohen and Areni, 1991). The definition of emotion is complex and in marketing, social, psychological, and philosophical literature abounds with argument about what exactly 'emotions' are and their links with terms like 'feelings', 'moods', 'affect', 'arousal'; let alone their relationships with 'motives', 'needs' and 'wants', and the part they play in forming 'attitudes', 'values', or 'goals' (Cooper and Pawle, 2005).

Drozdova (2014) summarizes several studies in which emotions can affect consumers' behaviour in various ways. For example, emotions can influence customer satisfaction and customer loyalty. Moreover, emotions can predict customers' judgments, decision-making and overall evaluation of products or services. The emotional lexicon (positive or negative) used by consumers in product evaluation and people communication cause that the information value of the message increases in the respective direction.

Therefore, the emotion will be a factor of great influence in the consumption of food, and this will be conditioned by several factors (Jiang *et al*., 2014, Loose and Szolnoki, 2012): (1) the sensorial properties of the product such as smell, texture, appearance and taste,

(2) the type of food, e.g. beverages, spices, fast food or snacks, (3) individual characteristics such as personal predisposition, culture, education and prior knowledge about the product and (4) the external attributes of the packaging such as colour, shape, size and design.

Emotions can be classified into positive and negative (Laros and Steenkamp, 2005; Desmet *et al*., 2008). In general, positive emotions optimally predispose to the consumption of food products and are signals of success and product acceptability. Opposite, negative emotions do not place the consumer in the best predisposition for consumption and their generation provides rejection (Gibson, 2006).

Therefore, the goal for food marketing will be to arouse positive emotions in the consumer such as joy, happiness, desire, security and kindness.

In emotional marketing two main lines of research can be distinguished:

The first line of research is a more applied one, and has focused on identifying influential emotions in food choice. Ng *et al*. (2013) linked the sweet taste of chocolate with the emotions of happiness, surprise and joy in adults. Thomson *et al*. (2010) showed that there is an association between the sensory and emotional attributes of cocoa: thus the strong taste was related to energy and the bitter flavour with confidence, adventure and masculinity. It was also detected that spicy food makes consumers feel excited and crisp products make the consumer experience fun. Patel and Schlundt (2001) showed that meals eaten in positive and negative moods were significantly larger than meals eaten in a neutral mood, and that a positive mood had a stronger impact on food intake than a negative mood. In the same line, Van Strien *et al*. (2013) stated that mood condition affects the amount of food intake, and that high emotional eaters ate significantly more after the sad mood condition than after the joy mood condition. It has also been shown that a positive mood leads to greater preference for healthy foods and a negative mood for indulgent foods (Canetti *et al*., 2002; Gardner *et al*., 2014).

Akiyama *et al*. (2012) relates the emotions experienced with a certain flavour and aroma in a ready-to-consume coffee drink. Schifferstein *et al*. (2013) analysed the emotional dynamics at different stages of usage of dehydrated products. They found that at the purchase stage, pre-existing attitudes and stereotypes towards the product group played a major role in affective reactions, while in the other stages, participants' emotional judgements reflected mainly their direct sensory experience.

Finally, King and Meiselman (2010) found that a key factor in measuring consumer emotions associated with products is whether the consumer is a product user, since product users have positive emotional responses to products, while non-users have more negative responses.

A second line of research in emotional marketing focuses on the emotion quantification and the development of measurement tools, that is, a more methodological approach. Social researcher Charles Osgood is quoted as the first exponent in the measure of the emotions. Osgood (1957) developed the Semantic Differential (DS), an instrument used to analyse the adjectives that individuals use to transmit emotions and feelings caused by the use of the product. Subsequently, Kano (1970) develops a method to evaluate the product quality, determining the attributes that bring greater satisfaction to the consumer. For this purpose, the method classifies consumer requirements into three categories: attractive, one-dimensional and mandatory (Yacuzzi and Martin, 2002). Conjoint Analysis (Green and Srinivasan, 1978), has been applied for over 40 years, primarily by researchers in marketing and business. It estimates the structure of a consumer's preferences (e.g., part worth's, importance weights, ideal points) given his/her overall evaluations of a set of alternatives that are pre specified in terms of levels of different attributes. More recently, the Premo tool, developed by Pieter Desmet in 2002, aims as its primary objective to measure non-verbal emotional response to different products. The method is based on 14 animated figures with dynamic facial, body and vocal expression, divided into 7 positive emotions and 7 negative emotions (Desmet *et al*., 2003).

2.3 The affective or emotional design. The Kansei Engineering

The affective design is a discipline that emerged at the end of the 20th century and encompasses different advances in the industrial product design, introducing a more direct relationship with the consumer in the traditional functional parameters of design, providing satisfactory and pleasant emotional effects. Emotional design creates links with the consumer that go beyond purely logical reasoning, trying to reach the consumer from an emotional perspective (Norman, 2002).

Therefore, in the product design process, the affective needs of consumers must be integrated with the

functional needs, since all products of daily life have not only a practical value, but a self-esteem and satisfaction value for the user, that is intimately linked to his feelings (Norman, 2005).

The development of the emotional design applied to food has been slow, because the food industry has focused its efforts on improving the sensorial characteristics of food and has paid little attention to the improvement of marketing aspects, especially the emotional characteristics of food. However, the food industry has started betting in a progressive way by this concept, since today it is not enough that the products have good organoleptic and nutritional characteristics. Consumers value the pleasurable emotional experiences that meet (or exceed) their expectations, whether in the taste or palatability of the food itself, in the design of the packaging, or even in the texts of its labels, everything that predispose to a tasty, exciting or healthy experience.

KE is considered an exponent of the emotional design. This technology is defined by its author, Mitsuo Nagamachi, as a "translating technology of a consumer's feeling and image for a product into design elements" (Nagamachi, 1995). It is a valid tool in the development of new products consumer-oriented, and is based on translating the mental images, perceptions, feelings and tastes of the consumer to the design elements that make up the product. It collects emotional needs and establishes mathematical models of how emotional needs connect with product properties, that is, quantifies emotional needs and develops them in products (Cano *et al*., 2009).

KE was firstly applied in the industrial sector, i.e., to automobiles (Nagamachi, 1995; 2002), office furniture, photocopying and printing systems (Nagamachi, 2002), office chairs (Jindo *et al*., 1995), telephones (Hsu *et al*., 2000) and assorted furniture (Lee, 2003). In Spain, a range of studies have focused on glassware (Petiot and Yannou, 2004), shoes (Alcántara *et al*, 2005) and the real estate sector (Llinares and Page, 2007).

The main objective of KE is to find relations between the *kanseis* or feelings connected to the product and the properties of the product. This includes two stages; first, the consumer's feeling (*kanseis*) about the product must be collected, that is, the semantic space adjusted to the potential consumers which include the wishes that the user has about the specific object. Second, we must assign the properties or parameters that are desired to study the product, that is, create a space of properties that must be connected with the needs that appear in the semantic space, and it is from these properties of which the designer uses for the user to provoke the sensations that are sought (Nagamachi, 2002). That is to say, the methodology is carried out in two phases, on the one hand aims to collect the emotional needs and on the other, establishes mathematical models of how the emotional needs connect with the properties of the products, that is, it quantifies the emotional needs and develops them in the products (Cano *et al*., 2009).

With regard to this first phase, the emotions that an agri-food product arouses in the consumer must be identified and measured, for which verbal reports of consumers that rely on emotional lexicon are usually used, as proposed by Chaya *et al* . (2015). One of the most used emotional lexicons is the Essense Profile® scale (King & Meiselman, 2010) that establishes a measure of acceptability and emotion measurement from a list of 39 emotions through a questionnaire (Table 1). Three of these emotions are considered negative (bored, displeased and worried), while the rest can be considered positive, excepting a group of eleven emotions that, according to the context, could be positive or negative (King *et al*., 2010). These emotions could be modified according to the type of product if necessary.

Table 1: *Essense Profile® Lexicon*

Energetic	Good-natured	Bored
Enthusiastic	Good	Active
Steady	Calm	Affectionate
Merry	Warm	Pleasant
Tame	Pleased	Aggressive
Interested	Whole	Joyful
Free	Understanding	Friendly
Nostalgic	Glad	Loving
Peaceful	Guilty	Eager
Worried	Tender	Mild
Satisfied	Wild	Disgusted
Secure	Happy	Daring
Quiet	Polite	Adventurous

Source: *King y Meiselman (2010)*

In the second phase it is necessary to establish which attributes of the product are the most influential for the consumer decision-making and which attribute levels are likely to convey the desired emotions.

In this work, we will create the semantic and property space for a specific product, the beer packaging. For the semantic space, the Essense Profile® scale will be

considered as a starting point. In addition, we will try to establish which attributes of the beer packaging are likely to transmit emotions to the consumer. Both spaces are the basics to establish the potential relationship between the product attributes and the emotions perceived by the consumers. These are the fundamentals of beer packaging emotional design.

2.4 Emotional design applied to beer packaging.

There are not many specific works dealing with emotional design applied to beer. It is highlighted in the work by Chaya *et al*. (2015a) to generate an appropriate lexicon to measure the emotional response to beer. Most sensory and consumer emotion research has focused on self-report measures that prompt the consumer to directly indicate their emotional response to a given stimulus. This requires an emotional lexicon to which the consumer can refer and thus express their emotions. Such lexicons can be divided into two categories: predetermined and consumer-led. In the study by Chaya *et al*., (2015a) a reduced and consumer-driven lexicon is developed to measure the emotional response to beer, which advances in the approach of previous studies recommending to use predetermined lexicon. A lexicon of 44 emotional terms was generated and later reduced to 12 distinct emotion categories.

Chaya *et al*. (2015b) used the EsSense Profile to measure consumer emotional responses to beer to determine if a relationship exists between sensory and emotional attributes of products; and finally investigate the relative impact of sensory and packaging attributes on the emotional response in beers. They found that packaging cues were more influential on emotional response than sensory attributes, but the latter also did play a role.

It is especially relevant the influence of packaging design and label colour on the consumer's perception of beer. In the study by Lidón *et al*. (2014), two different bottles and 4 label colours were combined to obtain eight different beer bottle designs. Results show that the label colour is a more relevant factor than the bottle design in the perception of the consumer.

As far as we know, the study by Hirata *et al*. (2004) is the only one that uses KE with beer. They identify the design elements that can satisfy emotional and sensitive needs (sense of vision) of a specific market for beer cans. They firstly collect the main *kansei* needs of each market (Mexico and Japan) and later translate them to design elements, obtaining a product proposal. The kansei needs in both markets were similar (lightness, attractiveness and showy), but the design elements that make possible the satisfaction of needs are different. For example the white colour is defined as *light* in the study of Japan, but in the study of Mexico this *kansei* is associated with the silver colour.

3. MATERIALS AND METHODS

To obtain the emotional lexicon, we combined a predetermined approach based on the Essense Profile® scale, and a consumer-led approach. Both approaches were used in the framework of a qualitative research technique: the Focus Group.

The Focus Group are group interviews where a moderator guides the interview while a small group discusses the topics that the interviewer raisers. Typically, there are six to eight participants who come from similar backgrounds, and the moderator works from a predetermined set of discussion topics (Morgan, 1997).

The Focus Group's use is basically exploratory and especially appropriate to understand consumer's emotions when they purchase products, unconscious motivations, quality or deficiency perceptions in a product, reactions to new products or packaging, opinions, attitudes and preferences, as well as to develop the more appropriate lexicon for questionnaire design and effective communications.

The main advantages are that (1) they are an economical way of tapping the views of a number of people, (2) they provide information on the 'dynamics' of attitudes and opinions in the context of the interaction that occurs between participants, (3) they may encourage a greater degree of spontaneity, (4) they can provide a 'safe' forum for the expression of view and (5) participants may feel supported and empowered by a sense of group membership and cohesiveness (Sim, 1998). On the negative side, the main weaknesses of focus groups are linked to the process of producing focused interactions, raising issues about both the role of the moderator in generating the data and the impact of the group itself on the data (Morgan, 1996).

In our study, we used Focus Groups to detect the principal emotions related to the beer consumption and establish the product and level attributes that are responsible to transmit these emotions, that is to say, the *semantic space* and the *space of properties*.

3.1 Previous phase

In the prior phase we proceeded to select different beer packaging (Figure 1). For this purpose, the researchers

visited several shopping places and observed the different attributes and levels of beer glass bottles. Finally, 23 bottles were selected which represented a different sample in terms of size, packaging colour, labelling, etc., avoiding the presence of usual brands in any case, so that previous experience did not condition evaluation (King and Meiselman, 2010).

A questionnaire was designed to collect, during the group interviews, the product attributes, the evoked words (*kanseis*) and the emotions.

The questionnaire was divided into four parts: the first one asked consumers to indicate whether they recognized or had ever consumed any of the beers. Next, they were asked to choose three beers that they would buy and three others that would not buy. After focusing only on one of the preferred bottles and one of the rejected bottles, the participants had to write three to five words aroused by each of them; these words are the *kanseis*. In the last part, the EsSence Profile® emotion scale (King and Meiselman, 2010) was used to measure the emotions triggered by the preferred and rejected beer bottles. The data were recorded through CATA (Check-All-That-Apply), thus allowing consumers to choose all possible emotions from the list.

3.2 Focus Group

To gather the information, four group interviews were carried out at the Miguel Hernández University (Spain). In each session, between 8 to10 habitual beer consumers were chosen from among the staff and students of the University, since, as suggested in the literature on qualitative methods (Chambers *et al*., 2008), participants should be as homogeneous as possible in demographic terms. This will be of great help to facilitate discussion and dialogue during the interview. All sessions were held during the month of March 2016, with an average time spent of 75 minutes. The information was collected using several procedures: the questionnaire, two observers' registers and audio recording.

The sessions were developed in two stages. In the first one the participants were asked to examine the beer bottles that were randomly disposed in the centre of a meeting table. Each of the packaging was identified with a three-figure code (Figure 1). They were allowed to examine the product in the same way that they would do in the place of the purchase, thus, in a typical purchase situation. During this stage, which lasted between 5 and 10 minutes, they were asked not to talk or interact with other participants.

Figure 1: *Beer packaging and identification codes used in FocusGroup*

Next, they were asked to sit down and complete the first part of the questionnaire in which they had to choose and refuse three beers. At that point, the moderator started a first debate to find out the reasons for their choice, the packaging attributes that had driven the choice and the words (*kanseis*) suggested at the time of choice or rejection.

Following this, the participants had to select in the Essense Profile emotion scale, those emotions that they had experienced for each bottle. After that, a second debate was opened to discuss these emotions and investigate the packaging attributes that had caused that emotion.

4. RESULTS AND DISCUSSION

4.1 Creating the Space of Properties: Packaging Attributes

To determine the *space of properties* a participant discussion about the preferred and rejected beers was provoked.

The best valued beers were those identified with codes 468 and 671 (chosen as preferred by 10 participants, Figure 2), both with elongated bottles, white label and colour typography. They differ in the bottle colour and the type of label as the number 468 is a green bottle with traditional label attached to the packaging while the 671 is transparent and the label is screen-printed on the bottle. The third beer with the highest number of preferences was the one coded with the number 592, beer of elongated packaging and amber colour with a screen-printed label with religious drawings in white colour on the same bottle.

In general, the attribute level most frequently chosen in the packaging choice were the elongated shape (opposite to the stubby bottle), the green, amber and

transparent colours of the bottle and the simple labels with colour printing on white background, as well as the directly screen-printed labels on the bottle.

The labels with predominance of green and gold colours and those connected with "the classic" were very valued by consumers and they were associated with maximum quality and familiarity, and linked to leisure time like holidays, free time, musical and sport events. The black colours were also selected by the participants and associated with elegance, confidence and feeling of exclusiveness.

In short, the discussion on the preferred beer packaging turned around three attributes: packaging shape, packaging colour and label type.

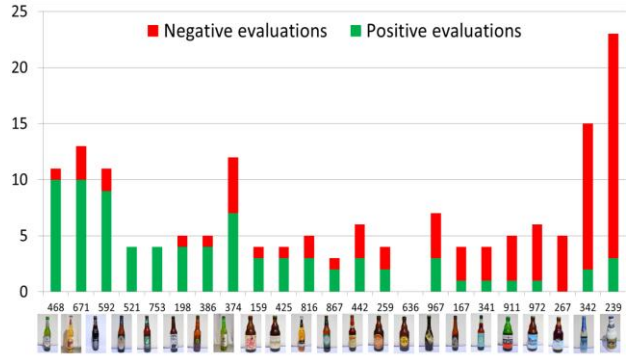


Figure 2: *Number of positive and negative evaluations of beer bottles*

Two beers were mostly rejected, both with opaque bottles and a drawing on their label that was considered unattractive. The rest of the beers were rejected by less than 5 participants so they had less weight in the results.

In general, stubby beer bottles did not please the consumers in any of the four sessions. This might be explained because they are very unusual and largely unknown in Spain, where beer is usually consumed in the classic long bottle. The packaging opacity was the most rejected attribute because it did not provide confidence or security over the content.

The less appreciated label colour was the light blue, possibly because it is little associated with the product. The dark blue colour does appear well valued, although certainly related to alcohol-free beer.

Regarding the label typographies, the greatest rejection was towards those designs that were considered inappropriate for a beer bottle such as those proposed in beer 239 and 342: they are opaque bottles with drawings and messages about pirates and/or animals of awkward colours (pink elephant). Excessive information on the label or confusing and incomplete information was also noted as displeasing to consumers. Participants liked the 80's labels with rock and roll and vintage evocations. Likewise, those beers with labels that evoked abbey beers were identified as susceptible to purchase.

In summary, the discussion on rejected packaging again focused on the colour and shape of the bottle and the label. Although moderators put emphasis on other attributes with potential to cause choice or rejection, such as caps or neck labels, they were considered irrelevant.

4.2 Creating the Semantic Space.

The construction of the semantic space took place in two phases that combined a spontaneous and a guided production of emotions.

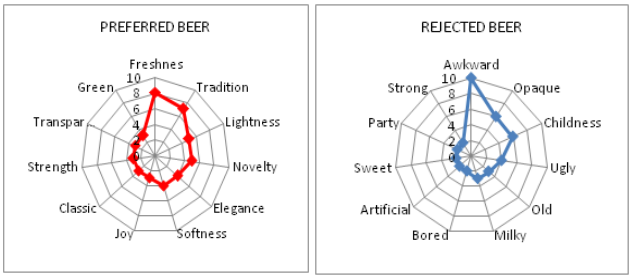
In the spontaneous phase, the participants were asked to submit between 3 and 5 words aroused from the beer they would buy and the same with the beer they would not buy (Figures 3 and 4).

The words evoked by the participants (or *kanseis*) provided varied information regarding the relevant attributes of the packaging and their effect on the beer choice. Among *kanseis,* there were some emotions such as "joy" and "bored", attribute levels of the packaging as the "green colour" and "transparency", and others words referring to beer attributes as "fresh", "light", "soft" and "strong".

The *kanseis* evoked by the preferred packaging were mainly related to "freshness", "tradition", "lightness", "novelty", "elegance" and "softness". To a lesser extent, "joy", "classic", "strength" and colours "green" and "transparent".

The *kanseis* mostly named for beers valued positively as "freshness", "lightness" and "novelty" were associated with leisure-related situations, like summer, sports events, music shows and youth. In contrast, "tradition" and "elegance" were associated with old people and consumers who look for status and quality of the product.

In rejected beers, the most named *kanseis* were, in a remarkable way, "awkward", "opaque" and "ugly" with regard to the packaging. The participants demanded, as a general rule, that the beer bottle did not hide the content.



Figures 3 and 4: *Kanseis evoked in the packaging choice.*

In the guided phase, the EsSense Profile® scale was presented to the participants and all the emotions aroused by the preferred and the rejected beer were collected.

Figure 4 shows the 16 most marked emotions in the scale and the frequency of occurrence for both, the preferred and rejected beer.

The emotions that were most frequently identified with the favourite packaging were "pleasant", "glad", "happy", "free" and "pleased" while the most commonly used emotions for the dismissed packaging were: "bored" and "disgusted" (Figure 4).

Two emotions of the predetermined scale were not pointed out by participants in any case: "good-natured" and "worried".

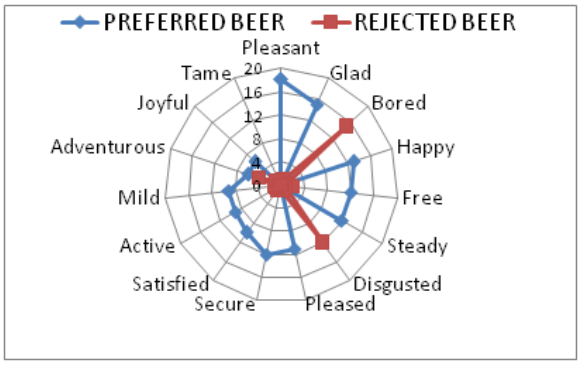


Figure 4: *Emotions associated with the favourite and the dismissed beer packaging.*

During the group interviews, participants also proposed new emotions not included in the EsSense Profile scale, for example "intense", for the packaging they would choose and "repulsive" "insulting" "childish" "shocking" "ridiculous", "surprising"," suspicious", "sinister", "unsafe" and "anger" for dismissed packaging. As noted, many more negative emotions were added, possibly because the Essense Profile® questionnaire has a greater presence of positive than negative emotions.

Table 2 shows the number of times that each word was ticked or named, as well as the matching that we have considered between similar words, taking into account the following criteria:

- Some words were grouped into an only term because they were considered as synonymous by participants during the debate: "joyful", "glad" and "merry" "calm" and "quiet"; "mild" and "peaceful".
- Some *kanseis* such as "green" or "transparent" were dismissed because they referred to product attributes and thus, they are part of the *space of properties* rather than the *semantic space*.
- Some *kanseis* were discarded because, according to the researchers' interpretation, they were packaging descriptions more than sensations or evocations transmitted by them as for example "rare", "milky" or "opaque".
- We removed those emotions or *kanseis* that were marked by less than 6 participants, except "aggressive", since their connotation is negative and the scale lacks from negative terms.
- Emotions that were not generated or aroused by the packaging itself, but for its content ("tasteless", "milk colour", "turbid", "black beer") were also dismissed.

Table 2: *Guided and spontaneous scores on emotional words and kanseis.*

TOTAL	Spontaneous	CATA	TÉRMINO
38	3	35	Joyful/Glad/Merry
22	1	21	Pleasant
21		21	Tame
18	1	17	Calm/Quiet
17	2	15	Bored
16		16	Mild/Peaceful
14		14	Happy
14		14	Free
13		13	Steady
12		12	Disgusted
12		12	Pleased
12		12	Secure
11		11	Satisfied
10		10	Active
10		10	Adventurous
10	5	5	Strength/Energetic
9	9		Fresh
8		8	Daring
8		8	Wild
8		8	Nostalgic
7	7		Tradition
7		7	Good
7		7	Polite
6	6		Light
6	6		Novelty
6		6	Friendly
6		6	Whole
6		6	Enthusiastic
5		5	Aggressive

In short, the proposed *semantic space* for the affective design of beer packaging is shown in table 3:

Table 3: *Semantic space adapted to beer bottles.*

Quiet	Friendly	Active
Satisfied	Good	Adventurous
Secure	Light	Aggressive
Steady	Merry	Alegre
Strength	Nostalgic	Bored
Tame	Novelty	Daring
Tradition	Peaceful	Disgusted
Whole	Pleasant	Enthusiastic
Wild	Pleased	Free
	Polite	Fresh

4.3 Relationship between semantic space and property space.

Finally, the moderators encouraged a new debate among participants in order to investigate the potential relationship between the emotions and the beer packaging attributes. This allowed for the establishment of qualitative associations between them.

Emotions such as "pleasant" and "steady" were caused by certain packaging attributes, mainly by “its long shape" and "its green colour". Some others like "tame" and "bored" were negative emotions mainly associated with neutral and muted colour labels, as well as with traditional typographies. "Disgusted" and "wild" were emotions linked to the "opacity" of ceramic bottles and the "drawings" and "colours" of certain labels such as the pirate and animal drawings.

The bottle opacity was an attribute associated with a multitude of *kansei* words with negative connotations, such as "oddity", "childlike", "ridiculous", "insulting", etc. However, given the proliferation of different words, there have not been many repetitions, so they are not finally in the semantic space.

5. CONCLUSIONS

To compete in today's markets, companies must be more creative and offer products and packaging that satisfy not only functional needs but also the affective need. In this work we have carried out the first stage of one of the most innovative methodologies on affective design: Kansei Engineering. This first phase requires the construction of appropriate properties and semantic spaces for the product under study, in our case, beer bottles.

The *space of properties*, that is, those attributes of the beer bottle as well as the level of attributes susceptible for the responsibility of communicating emotions are: *bottle colour* with the levels: green, transparent and opaque; *bottle shape* and the levels long and stubby; *label colour* with green, gold and black levels (although these levels could be expanded); and the *label design* whose levels have not been qualitatively determined.

With respect to the *semantic space* for beer bottles, it is composed of 29 words, which in the KE terminology are called *kanseis*: “Active”, “Adventurous”, “Aggressive”, “Alegre”, “Bored”, “Daring”, “Disgusted”, “Enthusiastic”, “Free”, “Fresh”, “Friendly”, “Good”, “Light”, “Merry”, “Nostalgic”, “Novelty”, “Peaceful”, “Pleasant”, “Pleased”, “Polite”, “Quiet”, “Satisfied”, “Secure”, “Steady”, “Strength”, “Tame”, “Tradition”, “Whole” and “Wild”. In coincidence with Gutjar *et al*. (2015) and Desmet and Shifferstein, (2008) the semantic space has more positive than negative words.

The affective product design needs the association between both spaces, which requires a quantitative investigation to establish significant relationships between the *kanseis* and the product attributes.

This work may serve as a basis for future research, with the ultimate goal of achieving an optimal design of beer packaging that is emotionally adequate and attractive to consumers allowing companies to approach the markets most likely to succeed.

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