ABSTRACT

Many studies have been done on how a product’s image and design can influence a customer’s perception and preference towards a range of products. However, many aspects remain unclear how the consumer’s perception is processed and which elements or factors truly influence a person to chose a product over another. Although this research certainly doesn’t intend to bring all the answers for these questions, it could help to explore further and gather more information about how consumers tend to process information when looking at a product, particularly in this case, wine labels.

This initial exploratory research uses the eyetracking technology to study the influence of product’s image on the consumer’s perception and gain a better understanding on what consumers look when seen a wine label. It explores possible cognitive differences in perception and preference of wine label among consumers in order to elucidate some of the cognitive process and variables that seems to influence a customer’s perception, preference and intention purchase.

It looks like that cognitive attention and perception of wine labels may have small difference between men and women. Men would tend to focus a little more on the information and women a little more on the design / aesthetical harmony as a whole. Also, when presenting three different wine labels, one with a (a) classical / typical, (b) moderately atypical and (c) atypical design, subjects paid greater attention to the moderately atypical design. The visual response given to the atypical design didn’t translate into willingness from part of the subjects in paying a higher amount for that wine.

The challenge with the information provided by the findings of this study in managerial terms would be how to address a different range of public with different demands and expectation when wineries have only one wine label to market their product. In other words, the challenge for marketing would be how address all these different wine public in one label or to use a segmentation strategy to better differentiate.

Consumer perception on wine’s label and degree of design typicality:
Are there visual neuro-cognitive differences on what consumers look on wine labels?

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Introduction

Many studies have been done on how a product’s image and design can influence a customer’s perception and preference towards a range of products. However, many aspects remain unclear how the consumer’s perception is processed and which elements or factors truly influence a person to choose a product over another. Although this research certainly doesn’t intend to bring all the answers for these questions, it could help to explore further and gather more information about how consumers tend to process information when looking at a product, particularly in this case, wine labels.

This research is particularly interested in studying how a product image, wine labels, influences a customer’s perception. What do customer’s look at first, are there patterns involved, to what level an image, in this case a product label can moderate a product perception and preference of a wine? This research uses a neuroscientific technic, called eyetracking, as an instrument of observation of the cognitive reactions of the subjects.

The Richness of Wine

Wine is one of the most difficult products to study: chemically speaking, wine and milk are among the most complex types of foods. In France, for example, the level of sophistication of these two products includes, just for cheese, more than 250 types and innumerable types of wines. Today the level of sophistication of wine has become even more considerable with top quality level wine production been found in Chili, California, New Zealand, etc. Only a few regions in the world have the privilege to have excellent conditions to grow good grapes: the weather conditions over the year have to be very favorable; the soil structure has to be excellence, etc. In addition to the physical-geological conditions, the local know-how on wine production has become also essential in creating a notoriety of being world’s top-level wine. So, the multitude of variables that can shape a wine’s taste has given to this industry a unique kind of reputation where every year producers try to reach a chemical equilibrium that would reflect in an excellence in taste, with a degree of refinement difficult to be seen in any other product. But how, all of this complexity translates into the customers observing a wine label and choosing a wine?

One of the main managerial issues regarding the wine labels that have been intriguing marketing specialists has to do with the problem of marketing differentiation of the labels. How to use the label to make it recognizable and preferred in a sector with a extensive number of brands? In France, a study conducted by Onvin (2004) found that about 72% of French people find it hard to choose a wine. According to the Marketing theory, under this scenario the need of product differentiation would help customers to better choose the product they want as they find them alike. One of the ways to do it so, would be by changing and differentiated the product image, mainly, the wine’s label. If such proposition seems simple to solve, a few studies shown however, that the change of a product design, could, if too far from the common traits associated with the product, like being too modern in the case of wine label, could negatively moderate the consumer’s perception over the quality and preference of a wine (Cellay, 2010).

An exploratory research done by Passebois-Ducros et al. 2012, provided an additional measure of the sensitivity of a graphics wine’s label using the case of Bordeaux’s wine. This work will thus put into perspective the results by comparing them with the eye-tracking analysis. Understanding of ocular reactions can better understand consumer choices facing the graphical richness of linear wine merchants. This conceptual contribution is also accompanied by two strong managerial implications:

A) The first managerial aspect, more intriguing perhaps, regards the fact that many recent research has lead to the idea that the perception of a quality of wine is not only based and shaped by the sensorial aspect of the wine itself, that is, the odor, flavor, color, texture, temperature, but that instead, it could be moderated by other, and very influential, subjective aspects. As intriguing as it could be, a few researches lead to confirm that as shown in the study entitled “Influence the judgment of typicality judgment on the labels of wine typicality: an application to Bordeaux” (Passebois-Ducros et al., 2012). According to the study “the presence of the label seem to change the appreciation of the wine typicality”. In short, such study suggest that the image of a product including the wine label and its text content and design, could moderate influence one’s perception about the quality of the wine.

This would actually mean that if many would assume that a wine’s perception of quality could be consciously built among experts uniquely based on the wine’s attribute, even experts can be mistaken and have their perceptions changed when presented the same wine with a different label. Such possibility has also been shown in other marketing studies on wine (Mc Lure et al., 2004; Plassmann et al., 2007), where the exogenous characteristics of a product seemed to influence on the appraisal of endogenous characteristics of the product.

Such type of conclusion has helped to show how rich the study wine is and how pertinent it is to marketing, as it can help to understand and better elucidate the variables that seems to influence a customer’s perception, preference and intention purchase. For the wine industry itself, on the managerial side, producers should be aware that a wine is not only

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1 Original translation : “La présence de l’étiquette semble donc brouiller l’appréciation de typicité gustative du vin.” (p.11)
about its organic structure and taste. The way the information and brand design is presented, among other marketing variables, seem to be of relevance as well.

B) A second point of interest, from the managerial standpoint and the Academia, would be to better understand how consumers can differentiate a wine in terms of its unique design or traits, so it can be noticed and memorized when compared to the other thousands of wine brands by the customer. In other words, how to make a wine label unique and at the same time accepted? This problem is of course not easy to be solved. Celhay’s work (2010) has shown that a wine’s label degree of typicity is directly correlated to the degree of consumer’s acceptance and preference of a product. With this information in mind, by using a neuroscientific resource of the eye-tracking this research tries to bring forwards some additional information to identify the consumers reactions over different types of wine label brands to, by observing their cognitive reactions, better understand how the process their preference.

1. Conceptual Framework of Typicity and Typicality

In order to better the understanding of the influence of wine’s label typicality on the judgment of its typicity, that is, the endogenous aspect of the product by the consumer and the degree in which this moderation occurs, and how they interact, we will first have to explore the conceptual definition of typicality and then typicity.

1.1 The concept of Typicality

In psychology, it is well known that human beings learn since childhood to divide knowledge into broad categories. Using the cognitive feature that naturally tends to group each element within a class share common features classifying by categories bases this division. Some of these elements when they are particularly representative of each class are also called by prototype and is build by each individual based on its own perception/social experience.

One of the main purposes of this categorization is that it helps individuals, by grouping input data, to quickly identify what an object is, Ross and Mervis have introduced in 1975 the expression “typicality of an item” where a composite of elements enables someone to identify one item to be, for example, representative of its class. This defines the perceived typicality of an item as the degree of representativeness of this element relative to a given category. In marketing, the concept of typicality will also help individuals to create, when needed, new product categories, (when a product doesn’t fit in a product category), or sub-categories, (when a particular new knowledge indicates a characteristics seems to be an extension to the qualities attributed to a existing products/category).

Typicality is also present in the decision making process. Decision making is one of the most basic cognitive processes of human behaviors, that is one’s preferred option or a process of choosing something from a set of alternatives based on certain criteria. In the decision making process, the concept of typicality would serve individuals to decrease the time required and streamline their decision-making process by making. Thus, individuals would have a natural tendency to seek to classify and organize their knowledge putting well-defined categories, as decision-making is an inherent process to everyone in life.

Regarding the wine, it means that the individual during the decision-making process would tend to choose or at least seriously consider taking into account the wine ”most typical” of the category that he or she prefers. By most typical, one can use Gibson’s definition (1979) of typicity where the representation of an object that would include both the visual and associated sensory features and its identity. This identity is not just a simple label or a name, but also an "action potential" in which the property of the object is called, by Gibson, of affordance. This, of course, has led marketers and scientists to wonder about the determinants of typicality, that is to say, what determines the degree of typicality of an item. What kind of traits, for example, would make Bordeaux’s wine typical in terms of its traits that would be easily perceived by consumers?

Celhay (2010) asked in his research the following question: what are the conditions for acceptance, by the consumer, of a product whose visual appearance is perceived as atypical vis-à-vis its reference category and what are the conditions of acceptance of a new design that breaks with a little with visual codes of products in its class? In another word, what conditions would make a customer to appreciate or reject a wine due to its conformity or non-conformity with the standards of the category it belongs to? In his research, Celhay identified at least four variables that could influence and moderate the degree of perceived typicality or atypicality of product/package design, such factors being (1) the personality type of consumers, (2) the relationship that the consumer has with the product, (3) the degree of involvement/attachment to the perception of the category of that product and, (4) socio-demographic factors.

The degree of typicality of a product would, of course, add up as one additional criterion taking into account by consumer in his or her preference level of a wine during the purchasing process. Other variables relate to the intend of the purchase in wine is based on the purpose, meaning that it would depend if the wine is for example for a gift to someone, a special dinner, an appetizer, etc. and characteristics of the buyer, such as personality, gender, mood alteration, age, degree of expertise, etc. (Aurier, 2004; Mc Cutcheron, Bruwer and Li, 2009; Lockshin, 2003; Barber, Ismail and Dodd, 2008).

Because the visual aspect is one of the main contacts that a consumer has with a product, we could assume that the visual aspect could serve one of the most important and even decisive criteria for choosing a wine. Indeed, Whitfield and Slatter’s work (1979) showed a positive correlation between
typicality and aesthetic appreciation. Such study has also served as a parameter to try to understand if aesthetic appreciation was possible in atypical products and under which conditions it would apply. Cellay’s work, again, tried to identify through a “prisme théorique” (theoric framework) on how people would infer their judgment about product design typicality or atypicality and their manifested interest in purchasing (or not) a product and its perceived aesthetic degree of appreciation.

However, if the concept of typicality has some significant cognitive benefits, it could also apparently help to unconsciously generate some cognitive distortions. By quickly inferring judgments based on an image, consumers can indeed create a bias influence similarly found, by analogy for example, in stereotyping (the over effect of standardized and simplified conceptions, that sometimes make people base their judgment on some prior assumptions of someone or group of people). So by quickly accessing information in order to save some cognitive effort, individuals could sometimes lead themselves to make mistakes in their assertions. In fact, Gibson’s description of typicality, where the representation of an object would include both the visual and associated sensory features and its identity, based on an image could be so strong (in the case of wine, through its label) that it could overtake sensorial traits of typicality of the product. In short, a consumer could change its sensorial perception (taste) of a wine by being influence on how the visual code of the label of the wine he or she is drinking is aligned or not with the product category (degree of atypicality and acceptance or willingness to change one's perception) that he or she has been conditioned, in accordance with variables related to specific psychographic traits.

1.2 The concept of Typicity

The relevancy of typicality in defining a wine’s quality, in terms of product, is essential due to the fact that wine is an “experiential - sensorial” product. Its taste still remains as the main determinants of perceived product typicality as well as quality. But what is the concept of typicality really about? The typicality of a wine reflects mainly, among other variables, to where the wine comes from, also know as the concept of the “terroir”. The concept of “terroir” means that the wine would express the nuances of the land (including climate, type of soil, etc.) that gave its birth (Bassis and Leneuf Fourniaux, 1994). Thus, from a sensory point of view, wine experts can identify a typical wine, from a particular region, due to some intrinsic features peculiar to a wine’s soil and expressed in the wine’s specific aromatic features such as aromatic notes, level of astringency, color intensity aroma, flavor (taste), etc. In blind tests, such features could be perceptible by wine experts when compared to other different wines’ typicality (Ballester et al. 2005).

But the concept of “terroir” and typicality are not necessarily the same. If “terroir” reflects the expression condition of a particular soil / location / region, the concept of typicality, is more base on the one’s sensorial perception of the properties of the wine. Related to the properties’ perception, one’s

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presented wine labels. Subjects were more apt to guess the typicity of the wine they were drinking when the blind test was done with a classic wine label than a modern wine label. A more innovative label, in terms of wine visual code, would lead to subjects to make more mistakes and have more difficulty in accessing correctly the wine attributes they drank. Thus, the simple presence of the label, indeed, moderated the perception of the subjects on their perception of the wine’s taste. Thus, wine experts, had a much poorer performance than novices in guessing the endogenous characteristics of the wine they drank when exposed to an atypical wine label:

"The number of experts assessing typical wine decreases significantly when the wine is presented with a label atypical compared to the situation where the same wine is tasted blindly. Experts are much more prompt to describe the Bordeaux wine as being atypical when it has an unusual (atypical) wine label design. However, the fact of providing this same wine a typical label does not significantly increase the number of experts judging as typical." \(^\text{2}\) (Passebois-Ducros et al., 2012)

Such result contradicts previous notions that would assume a minimal moderating role of the exogenous attributes of a wine on most experts due to the fact that they would be less dependent on the influence of the external marketing traits on the product during their appraisal of endogenous characteristics of the wine. One of the reasons could be that since the experts are frequently subjected to visual association between the judgment of typicality and typicality their overall judgment (judgment of typicality production by the brain) is greater since for novice consumers, less frequently subjected to visual.

Image 1 – Example of wine labels representing different degrees of typicality: typical, moderately atypical, atypical (from left to right)

But the implications of the research by Passebois-Ducros et al. are of great relevance in managerial terms. If judgment made by consumers could be affected by the extrinsic information held on the product, it would mean that wine producers should be attentive of the intrinsic as well as the extrinsic factors as well. Many people on the wine sector have only attempted to explore the mechanisms of taste of the consumers, especially from experts, as way of measuring the quality and likeness of their product. But the study suggest that not only the assertion of the wine’s taste would be largely influenced by the consumer environment and experience, but the belief that only the organoleptic qualities would determine the excellence of the wine, and hence influence choice by the consumer, still seem to prevail on this sector. These recent researches would suggest that wine producers broaden their scope of the concept of the wine, as a product, and consider the wine packaging label, brand, etc., as important as well as it helps to create consumer’s perception and experience.

As previously mentioned, the notion that extrinsic factors influence one’s perception is not new and a few studies have highlighted the role of packaging on the judgment of typicality (Celhay, 2010, Sherman et al., 2011). Such studies also concluded that the degree of perceived typicality of products tend to be positively correlated with the degree of perceived typicality, which could also be noticed in the case of the wine (Passebois-Ducros et al., 2012).

Being aware of the importance of visual clues and how extrinsic factors can moderate one’s perception on a wine, this exploratory qualitative research focused on observing how a product’s image, in this case wine labels, were perceived by consumers psychologically, through the use of cognitive technic of eye tracking to deepen the understanding on what consumers look and what could be the possible impact of the product’s image on consumer’s preference and perception.

1.4 Hypothesis

Based on the research mentioned above, we formalize two hypotheses:

1. The H1 refers to the difference in perception of the label between men and women, including the type of information required on the label (degree, designation and address of the castle, etc.).

2. The H2 would indicate which wine label would have a greater level of attention (classical wine label versus modern (moderated atypical) or a no conform label (atypical)), comparing with purchase intention and price perception.
Image 2 – Wine labels according to their degree of typicality.\(^3\)

![Wine Labels](image)

The hypotheses will be as the follow:

**Hypothesis 1:** The behaviour of deciphering the wine label by a man vs. a woman would differ.

How the consumers perceives of exogenous characteristics? Do women look, analyzing the wine label, the same thing as men or would that differ? Are there similarities among men and women in terms of observation patterns such as hot spot zone, or time spend looking at the wine label?

**Hypothesis 2:** The respondents would have a cognitive and declarative inclination to prefer and value the wine with the most typical label (wine A).

The wine with the label design considered the most “typical” would get the first look and will get the most of the attention of the respondents. It will also be the wine chosen by the respondents to buy and with the highest pay intention.

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\(^3\) Labels of wines of Bordeaux have marked the industry, offering a very formal design, based on the presence of a castle "à la bordelaise" embellished shield or views of vineyards. In recent years, new labels were introduced. Recent offer less conventional design, using colors, shapes and arrangements original graphic. The labels used for our experiments include these major developments graphs (see Appendix 1) and were designed by experts (Cellay, 2010) taking into account the design elements that would characterize: (a) typical wine label, (b) atypical wine label and (c) moderate atypical wine label.

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2. Methodology

To test our hypotheses, we use three labels "types" as defined by Cellay (2010) in this work. These three labels are presented in Appendix 1 are also presented in the situation that is to say on a bottle of wine.

An experiment protocol was implemented to test our hypotheses. The experiment took place in the premises of the IAE de Tours in Vallorcem laboratory in collaboration with IAE Bordeaux and laboratory IRGO. The tested population was recruited from university staff (teachers and BIATOSS).

Description of Sample of this exploratory study:

- The group is composed of 4 men (between 32 and 50 years) and 4 women between 32 and 50 years.
- Each participant consumed wine (at least once per month) and a basic knowledge of Bordeaux wines (typical, name, reference price).
- Each participant was a wine amateur.
- Each participant consumed wine (at least once per month) and a basic knowledge of Bordeaux wines (typical, name, reference price).

The experiment:

Subjects were welcomed into the testing room. They were asked to put themselves in a position of a consumer interested in purchasing Bordeaux’s wine for dinner at home with a maximum budget being proposed. Three bottles and labels them are proposed and they are asked to respond aloud. They were asked to:

1. To look at 3 bottles / 3 wine labels and choose which they like the most and which they like the least.
2. They were then presented labels one by one to collect their feelings against the proposed graphics.
3. Then they were asked to attribute their preference and price range that would be willing to pay to each bottle of wine.

The place of the experiment (exposure time, in order of appearance) is presented in Appendix 2. An eye-tracking tool is used to analyze the eye movements of test subjects. All labels were fake labels, that is, they were designed by experts and were representative of elements contained in Bordeaux’s wine labels according to different degrees of typicality as researched by Cellay (2010).
As part of this experiment we use the tool T60 eye tracking company Tobii (www.tobii.com). This model fits in a standard 17-inch screen, which allows the user to have no contact and no interference with the measurement system. The experiment is completely invisible to the user. The use of image on the screen instead of actual bottle is justified, among those tested, the ease to introduce the bottle or the label only without having to manipulate elements.

2.1 The contribution of Neurosciences

Neurosciences can contribute to elucidate many issues that remains unexplained or partially explained in Marketing. Neuroscience can give very interesting insights at the neural responses (brain, nervous system and cognition in general) when someone is exposed to something. One advance of using cognitive techniques as a method of observation is that researchers don’t to rely only on what someone says about what he or she thinks, but can actually observe what the “body is saying”.

Thus, in one way, it also leaves behind the subjectivity as neurophysiological is what (physiological factors are observer). On the other way, it still leaves room to have psychological insight on what the body says compared to what individuals say. Droulers & Rouillet’s (2010) defines Neuromarketing as “the study of mental processes, explicit and implicit, and consumer behavior in various contexts for marketing activities as well assessment, decision making, storage or consumption, which is based on the paradigms and knowledge of neuroscience.”

The term of “Neuromarketing” can be used when neurosciences are studied for marketing purposes (Morin & Renvoise, 2007). Today, the use sophisticated technological resources can help the Academia to better learn about consumer behavior. Among the neuro-cognitive techniques that can be used is the one called “Eyetracking”. The Eye tracking technology measures the eye movements of someone while he or she observes visual insight(s). Most of Eyetracking techniques use a camera, usually in front of a computer screen, to track and record the eye movements. This tecknic allows researches and marketing professionals to study the order, point of gaze, and process of someone’s eyes movements when exposed to specific visual insights. Through the eye movements recording, it allows further evaluation and interpretation about what actually “sees” and focus on a particular image or set of images (video, web page, etc.).

The field of Marketing has been traditionally been a meeting pot of other traditional sciences such as sociology, psychology, management, etc., and as a science, it has greatly benefited from being open by the use of multidisciplinary approaches.

3. Results

Several differences were noticed in the experiment among the neurophysiological perception between men and women exposed to the three bottles of wine. Here are some of the highlights:

a) Initial Fixation Points

- The 1st fixation point for women, when exposed to the 3 bottles, was in term of time shorter than men (in average 0,618s versus 1,217s). Men spend in average 196,8% more time gazing at the first fixation area than women, who moved faster to another point of interest. In fact, the mode for women was of 0,268s (75%) and they quickly moved to the next fixation point.

Table 1 - Comparison of 3 wine labels and the first look (fixation point) done by 4 males versus 4 females.

<table>
<thead>
<tr>
<th></th>
<th>Males (Average)</th>
<th>Females (Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s</td>
<td>1,217s</td>
<td>0,618s</td>
</tr>
</tbody>
</table>

- In terms of similarity, both males and females directed their attention first to the bottle that was moderately atypical (in the center), COMMENT IN DISCUSSIONS BERLYNE U THEOR Y AND CENTER EFFECT.

- However, when the 3 bottles were exposed a second time, with the bottle with a more atypical label design at the center, results differed. Both males and females after first noticing the bottle with the atypical moved away to another bottle, but in opposite directions. 75% of
women moved their fixation point to the right (bottle with moderated atypical design) while part of the males, 50%, moved their fixation point to the bottle on the left with the traditional label design.

Table 2 - Comparison of 3 wine labels and the first look done by 4 males versus 4 females when changing orders of bottles to verify any central effect.

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>Orientation</td>
</tr>
<tr>
<td>Center &gt; Center = 50%</td>
<td>Center &gt; Center = 50%</td>
</tr>
<tr>
<td>Center &gt; Left = 50%</td>
<td>Center &gt; Left = 25%</td>
</tr>
<tr>
<td>Center &gt; Right = 25%</td>
<td></td>
</tr>
</tbody>
</table>

b) Stronger cognitive attraction to the bottle with moderated atypical design

- When the three bottles were first exposed the bottle with the atypical design in the middle, the bottle with moderated atypical design received a great degree of attention.

Image 3 – Heat point map showing to which bottles /labels the respondents paid more attention to.

Male number - heat map when looking at the three bottles.  
Female number - heat map when looking at the three bottles.

The stronger the intensity of the red color means a stronger gaze zone (heat point)

- When the three bottles were exposed again changing orders, with the bottle with the atypical design in the middle, the bottle with moderated atypical design continue to receive a great degree of attention.

Image 4 – Heat point map showing to which bottles /labels the respondents paid more attention to, with orders of the bottles changed (when being re-exposed).

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male number 1 - heat map when looking at the three bottles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female number 1 - heat map when looking at the three bottles.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The stronger the intensity of the red color means a stronger gaze zone (heat point)

c) Centric vision orientation more present in females than males

- According to this experiment males seem to look more for the information (text) presented in the labels than males as it can be seeing by the heat map zone.

- For the labels with typical and moderated typical labels, women spend more time looking at the symbols (images) than men.

- At the label with a more abstract design both men and women focused more on the right side of the label (which has the title and some text). Women focused more on the title than in the text details.

Image 5 - Comparison of visual perception of a typical wine label design by male (left) and female (right).
Image 6 - Comparison of visual perception of a moderate atypical wine label design by male (left) and female (right).

Image 7 - Comparison of visual perception of an atypical wine label design by male (left) and female (right).

As shown in the image 8, one can notice that it may have some differences in the cognitive response between males and females. Women could have a tendency to have a more centric view in their saccades and while males could go wider to the left and right while exposed to wine labels.

Image 8 - Gaze’s spot comparison between a female respondent, Annabelle (in yellow) and male, Michel (in pink).

Table 3 – Comparison between male and females respondents’ maximum reach X & Y values to the left and right of the screen

<table>
<thead>
<tr>
<th>EyePosition (pupil)</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>EyePosLeft (ADCSmm)</td>
<td>47,13</td>
<td>15,84</td>
</tr>
<tr>
<td>(min.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EyePosLeft (ADCSmm)</td>
<td>255,32</td>
<td>264,84</td>
</tr>
<tr>
<td>(max.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EyePosRight (ADCSmm)</td>
<td>47,13</td>
<td>36,49</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EyePosRight (ADCSmm)</td>
<td>257,18</td>
<td>263,84</td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d) Preference, Aversion and Willingness to pay
- When asked which bottle they preferred to purchase, the bottle with the moderated atypical label was the only one that was not rejected. The majority, 57.1%, chose the bottle with the moderated atypical wine label. None of the respondents chose the bottle with the atypical wine label.

Table 4 - Which bottle of wine the respondent would prefer to purchase

<table>
<thead>
<tr>
<th></th>
<th>A (Typical label)</th>
<th>B (Atypical label)</th>
<th>C (Moderated atypical label)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>42.9%</td>
<td>0%</td>
<td>57.1%</td>
</tr>
</tbody>
</table>

One of the respondents, the expert one, refuse to give any opinion as he considered that as these were not real labels he could not choose any.

- When asked which bottle they were NOT willing to purchase, the bottle with the moderated atypical label was the only one that was not rejected. The vast majority, 74.1%, rejected the bottle with the atypical wine label.

Table 5 - Which bottle of wine the respondent would not be willing to purchase

<table>
<thead>
<tr>
<th></th>
<th>A (Typical label)</th>
<th>B (Atypical label)</th>
<th>C (Moderated atypical label)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>28.6%</td>
<td>74.1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Again, one of the respondents, the expert one, refuse to give any opinion as he considered that as these were not real labels he could not choose any.

- Respondents were asked the price range that they would be willing to pay for each of the exposed bottle. Most of the respondents were willing to pay more for the bottle with the most typical label design. The bottle with the moderated atypical design received the lowest score in terms of the price in which the respondents were willing to pay: none of the respondents were willing to pay more than € 16 for the bottle.

Table 6 - How much the respondent would not be willing to pay for each bottle

<table>
<thead>
<tr>
<th></th>
<th>A (Typical label)</th>
<th>B (Atypical label)</th>
<th>C (Moderated atypical label)</th>
</tr>
</thead>
<tbody>
<tr>
<td>€</td>
<td>Less than € 10</td>
<td>€10 to €15</td>
<td>€16 to €25</td>
</tr>
<tr>
<td>%</td>
<td>14.3%</td>
<td>57.1%</td>
<td>28.6%</td>
</tr>
<tr>
<td></td>
<td>42.9%</td>
<td>42.9%</td>
<td>14.2%</td>
</tr>
<tr>
<td></td>
<td>83.3%</td>
<td>17.7%</td>
<td>0%</td>
</tr>
</tbody>
</table>

* based on 7 responses * based on 7 responses * based on 6 responses

4. Discussions

It is clear that this exploratory study has some limitations: only 8 respondents participated in this first experiment. Thus, although it is impossible to statistically validate the hypothesis, it will help to show some of the inclinations to try to explore more deeply in the next research. So, back to the hypothesis, the first one (H1) would be about if there would be any neurocognitive difference in the perception of men and women while observing the wine labels.

Hypothesis 1: The behaviour of deciphering the wine label by a man vs. a woman would differ.
The data suggest that it may have some differences between males and females. If both men and women respondents were attracted to the wine with the moderated atypical design, women gave much less attention to bottle of wine with the atypical, and more abstract, label design. Women seemed to be also faster in taking a first look of the options presented than men. The first two fixation points for men was in average almost twice “slower” than women, who quickly moved their fixation point:

<table>
<thead>
<tr>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.217s</td>
<td>0.618s</td>
</tr>
</tbody>
</table>

Another interesting finding worth to be studied in the next experiment is that it looked like that men were more in line to focus more on the details, paying more attention to text / information available on the wine label than women. The cognitive results suggest that women spend more time looking at the symbols (images) and titles than men as it can be seen on the heat area maps images of label A, B and C. Such findings could suggest that the way that men and women perceive a wine label differ. One would pay more attention (consciously or unconsciously) on some aspects than others. Finally, women could have a tendency to look at the exogenous characteristics that are more central in the bottle, while men could have a tendency to have wider patterns (to the left or to the right).

For the second hypothesis, we assumed that the wine label that the respondents would pay more attention would probably be the one they preferred also in terms of purchase intention. They would also attribute a higher paying amount for the wine they preferred. We also assumed that the bottle of wine with the most typical design would be the one preferred by the subjects.

**Hypothesis 2**: The respondents would have a cognitive and declarative inclination to prefer and value the wine with the most typical label (wine A).

However, the results from this exploratory study showed a dissonance: the body’s neurocognitive responses (what they looked more) didn’t necessarily reflect what the respondents preferred. In a way, the body seem to indicate one thing and the mind another. For example, in terms of attention, the wine with the moderated atypical design received a considerable amount of cognitive attention for both men and women (greatest heat zone). Such finding would be in agreement with the theory proposed by Berlyne (1960, 1970, 1971, 1974) who argued that the design with a moderately atypical trait would tend to create a higher degree of excitement and cognitive response among individuals.

According to Berlyne, there would be a positive esthetic response that would growth from the typical type of design to the moderated atypical (that could be seeing as more modern for example), reaching a peak in terms of cognitive stimuli (arousal), and then the intensity of the cognitive response would decline as the design becomes more and more atypical. Berlyne’s theory would then take a form of an inverted U shape (based on Wilhelm Wundt model) were the cognitive response of the body would reflect the esthetic appreciation of the exogenous feature of an object or product and its arousal peak wouldn’t be found on the most traditional characteristics, but on the middle range of tradition and innovation. Indeed, in our study then, the wine with the label design considered the most “typical” didn’t get the first look or the most of the attention of the respondents. In addition to that, the wine with the most atypical label design, when subjects were asked which bottle of wine they would not be willing to purchase, almost 47% rejected that bottle.

An intriguing dissonance seems to begin to happen when we move from the neurophysiology responses to the declarative responses of the subjects. When it comes to preference of purchase and price attribution the respondents seem to be more conservative. When asked which bottle they would prefer to buy for a dinner with friends, a slight preference was given to the bottle with the moderated atypical label design (57.1%). No respondent chose the bottle with the atypical design and the bottle with traditional design was the option for 42.9% of the respondents.

<table>
<thead>
<tr>
<th>Traditional label -</th>
<th>Atypical label -</th>
<th>Moderated atypical label</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.9%</td>
<td>0%</td>
<td>57.1%</td>
</tr>
</tbody>
</table>

But when asked about the price perception according to the different labels, respondents attributed the higher paying amount for the bottle with the traditional wine label: more than 35.7% would attribute a value over €10 for the wine with the traditional label, 17.7% for the wine with the moderated label design that got most of the attention.

5. Conclusion

As a conclusion, past studies have lead to the conclusion that, in wine, the consumers’ perception and judgment of typicality and atypicality are complex. As the interactions and influence of a product’s typicality over typecity represents a managerial issue of primary importance in the field in wine, as previously mentioned this research intended to deepen the knowledge on this subject, using in part a resource of cognitive science, the eye-tracking.

As part of this exploratory experiment, we found that (1) there could have some cognitive differences in the perception of wine labels between men and women. We also found that (2) the most traditional label weren’t necessarily the one first noticed or most observed. The wine with a moderate design label was the one preferred by the subjects, suggesting that the theory of Berlyne could cognitively
take effect on the case of wine label’s perception. However, in terms of price attribution, the wine with
the most traditional label was the one that received the highest amount.

One could argue that the consumer is able to make different types of assessments, one physiological
and another mental, and both would interact different at the different stages of the process or goal. For
example:

- The individual may appreciate or give more attention to a product that has more unique
  traits, but that doesn’t deviate from much of the known cognitive patterns of the category.
- The product that created the greatest response neurophysiologically through the visual
  exposure may or may not reflect in product purchase intention (the individual can act
  more conservatively and opt for the product with the less amount of risk involved).
- For the wine, despite the stronger cognitive response and preference for a more modern
  label design, price allocation to typical /traditional wine labels may still play a big role on
  the consumer (conscious or unconscious) perception.

Further studies could suggest some managerial implications. If confirmed the difference in perception
and preference between men and women, how would companies with only one label best address such
differences to please both types? Also, how to deal with the balance between being traditional and
being able to be noticed / different, to be more appreciated or recognizable? It is certain that the mind
of individual, his or her cognitive and other psychological aspects (memory, perception, biology,
mood, etc.), seem to play an important role in the shaping a product perception and further research on
this area is necessary.

Research’s limitations and further studies

This exploratory research had (1) a very limited number of participants and (2) the labels used were
not of true products existing in the market. Although professional designers did them it offered serious
limitations in having the contributions of experts who found difficult to attribute preferences solely on
the basis of a wine’s label design. Further studies would be encouraged.

APPENDIX 1

Visual bottles and labels used in the experiment.

Image 1: Overview of the three labels as shown in the screen.

Image 2: The three wine labels used in this experiment.
APPENDIX 2

Screen 1 - "Hello, in this study we ask you to imagine that you need to buy a bottle of wine for a dinner with friends tonight at home. Your budget is a maximum of €25."

Screen 2 - Three bottles, we'll ask you some questions about them.

Bibliography


Webster, M. (2010). Analysis of wine label design aesthetics and the connection to price. Presented to the Faculty of the Agribusiness Department California Polytechnic State University.