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# Label design of wines sold online: effects of perceived authenticity on purchase intentions

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## **Abstract:**

This article aims at exploring the relation between customers' perception of the authenticity of wines and their purchase intentions in online retailing. We investigate if perceived pleasure plays a mediating role and whether the relation between perceived authenticity and perceived pleasure is moderated by the color type (heraldic vs. vivid colors), presence or absence of a château (icon), and visual complexity (high vs. low) with respect to label design. For this purpose, we conduct an exploratory study followed by an experiment (n= 215). The results reveal that perceived authenticity has a positive effect on both pleasure and purchase intent. Labels showing heraldic colors and low visual complexity lead to a stronger effect of authenticity on pleasure in comparison to labels with vivid colors and high visual complexity. The presence or absence of a château does not have a significant moderating effect. Therefore, wine marketers selling wines on the Internet are advised to design wine labels which tend to show heraldic colors and low visual complexity to enhance customers' perception of wine authenticity.

## **Keywords:**

Wine labels; authenticity; pleasure; e-commerce; semiotics; colors; icons; visual complexity

## 1. Introduction

Choosing a bottle of wine from an online retailer can be relatively difficult and time-consuming in today's wine market. The reason is that there is a wide choice of wines available on e-commerce websites (wine growers, wine merchants, private sales, auctions, and subscriptions) as well as on social media and apps. According to Samarcq and Césard (2019: 21), e-commerce remained, by far, the most dynamic sales channel for the French wine market in 2019, with a growth rate of 7.5% in terms of value sales. The task of selecting a wine bottle is getting even more complicated when the buyer is a novice and, therefore, not an expert in relation to wines. Nevertheless, research has suggested that a good user-website relationship may increase the level of consumer trust towards an online retailer and enhance the 'stickiness' of their website (Lee and Park, 2014; Xu-Priour et al., 2017; Lee et al., 2018).

The most important design elements of wine bottles are the shape, size, and color of the bottle, the foil cap, cork or screw cap, as well as the front and back label (Thomas and Pickering, 2003: 58). In general, packages convey associations, values, and ideas that help position the brand in the consumer's mind and contribute to its storytelling (Bobrie, 2018; Kniazeva and Belk, 2010). According to Thomas and Pickering (2003: 71), it is the front label which has a greater significance to consumers than back labels when buying wine in brick-and-mortar stores. In view of online retailing, the images of wine bottles usually only show the front side of bottles, which can be normally even zoomed in by the customer.

Pelet et al. (2017) as well as Pelet and Lecat (2014) stress the importance of considering the design of wine labels when wine is promoted online. The main difference between label designs online and offline lies in the type of colors used. On the whole, color is made up of three principal components (Trouvé, 1999): "the hue (or chromatic tonality), which is the attribute of the visual sense defined according to the colors denominations such as blue, green, red; the saturation, which provides the proportion of chromatically pure color contained into the total sense; the brightness, which corresponds to the component according to which a surface illuminated by a source seems to emit more or less light" (Pelet and Papadopoulou, 2012: 439). For offline labels the process of applying colors is based on serigraphy, also known as silk screening, screen printing or serigraph printing. It is a stencil-based printing process in which ink is forced through a fine screen onto the paper beneath. The colors that are used for this process are CMYK (Cyan, Magenta, Yellow, Black), which represent the colorimetric mode suitable for printing. This process can create heraldic colors,

such as the metallic colors of gold and silver. In contrast, online labels show the RGB (Red, Green, Blue) color mode, which is reserved for screens. In this case, the printing process does not allow creating heraldic colors. Designers can only produce colors which are close to metallic ones, but not exactly reproduce these colors.

Among the different design elements, it is especially the origin of wine communicated on wine labels which largely raises the customer's perception of authenticity. Puligadda et al. (2012) confirm that the authenticity of wine represents one of the most important aspects customers consider when purchasing wine. While Beverland and Farrelly (2010) researched the authenticity of products from a general perspective, Napoli et al. (2014) as well as Morhart et al. (2015) proposed scales for measuring brand authenticity.

Despite the interest of scholarship in both wine labels (Lick et al., 2017; Celhay and Remaud, 2018; Favier et al., 2019; Celhay et al., 2019) and the promotion of wines on the Internet (Cho et al., 2014; Lobstein et al., 2017; Cassar et al., 2018; Festa et al., 2019), owing to the increasing number of consumers buying wine online (Thach et al., 2019), literature on the authenticity of label design of wines is rather scarce (Beverland, 2006; Lunardo and Guerinet, 2007; Escandon-Barbosa and Rialp-Criado, 2019). The scarcity of research on the authenticity of products sold online, in general, has been confirmed by Davis et al. (2019: 17). However, consumers who attach high importance to the authenticity of wines are more likely to judge online purchases of wines as riskier (Cho et al., 2014). This requires marketers to convince consumers of the authenticity of wines when marketing them online. Thus, there is a need for research in this field to increase sales of wines promoted online, whether from an app or e-commerce website, a laptop/desktop, or a mobile device.

Front labels of wine bottles shown online play an important role in the consumer's decision-making process and, ultimately, in fostering the user-website relationship. Generally, the purpose of front labels is three-fold: first, labels identify the brand and, ideally, generate brand recognition; second, they promote the wine and, hence, they play the role of a 'silent salesperson'; third, they describe the wine by giving information on the quality of the wine (Kotler and Armstrong, 2012: 256).

Hence, we envisage to investigate, in view of wines sold online, which influence customers' perception of the authenticity of front labels of wines exerts on customers' purchase intentions. Furthermore, we explore if perceived pleasure plays a mediating role and whether the relationship

between perceived authenticity and perceived pleasure is moderated by the following design elements of wine labels: first, the type of colors (heraldic vs. vivid); second, the depiction of a château (castle) or ‘domaine’ (estate), which seem to represent especially potent examples of the origin of wine; third, visual complexity. For this purpose, we conducted an exploratory study followed by a confirmatory one. Next, we present the conceptual framework and hypotheses for our study.

## **2. Conceptual framework and hypotheses**

### **2.1. Design elements of front labels: different semiotic representations**

We regard the typical components of wine labels from a semiotic angle. Semiotics refers to any type of “*meaning-making and representation in many forms*” (Chandler, 2002: 2). Such semiotic representations, also referred to as signs, may be words, images, gestures, colors, sounds, and objects, or even smell (Chandler, 2002: 2; van Leeuwen, 2005: 51). Semiotic theory posits that a sign is of binary nature since it consists of a ‘signifier’ (denotation), *i.e.* its physical representation, and a ‘signified’ (connotation), *i.e.* the concept evoked in the consumer’s mind (Oswald, 2015: 15). Considering the different types of semiotic signs, Pierce (1955) distinguishes between an icon, index, and symbol.

#### ***Icon, index, and symbol***

An icon resembles its referent, like brand names and logos, which apply iconicity to create favorable connotations. An example would be the logo of *WhatsApp*, which shows a telephone receiver in a speech bubble. Referring to wine labels, icons, such as landscapes, a château or ‘domaine’, and wine grapes, show some similarity to the corresponding real-world phenomena.

In contrast, an index represents “*a sign that encodes spatio-temporal or cause-and-effect relations*” (Beasley and Danesi, 2002: 40). For example, Kress and van Leeuwen (2006: 196–197) claim in their *Grammar of Visual Design* model that elements that are placed in the center of a visual composition normally convey the gist of the information, upon which all the other elements are contingent. Referring to wine labels, putting the name of the wine producer into the center of a wine label may highlight its importance over the other visual design elements.

Based on the distinction between icons and indices, Grayson and Martinec (2004) differentiate between iconic and indexical product authenticity depending on the cues which are applied in marketing communications. While Carsana and Jolibert (2018) explored the impact of iconicity

and indexicality on the perceived authenticity of private-label brands, Lee et al. (2019) examined how both types of authenticity applied to the packaging of cosmetic products influence purchase intentions.

Finally, in the case of a symbol, whose most important example are words, the relation to its referent is arbitrary and conventional. Similar to the fact that one has attributed the word ‘bottle’ to a particular container made of glass in the English language, one has assigned different grape varieties or quality classifications to different wines (Beasley and Danesi, 2002: 40–41). Both icons (château, landscapes, etc.) and symbols (words) shown on wine labels, which point to, e.g., wine regions, grape varieties, and different degrees of ripeness, are of pivotal importance for the consumer to assess the taste of wine, and, hence, make a purchase decision. In the visual design of wine labels, color constitutes another essential semiotic sign.

### ***Color and its functions***

According to Kress and van Leeuwen (2002: 347–349), color may have three different functions. First, it may have an “ideational” function (Kress and van Leeuwen, 2002: 347), *i.e.*, color may identify specific, or classes of, people, places and things, as well as more general ideas. For example, whereas national flag colors distinctively designate specific nation states, like the colors blue, white and red on the French flag, companies have selected particular colors, or color schemes, to communicate their corporate identity, like the *Subway* green or *Coca Cola* red. In addition, colors enable consumers to identify individual products and to convey a message about the quality and price of the product (Singh, 2006: 787), such as the *Hermès* orange or *Tiffany* blue. Colors may also point to other product-related attributes, such as taste and ingredients (Kauppinen-Räsänen and Luomala, 2010: 302). In their study on front labels of red wine bottles, Lick et al. (2017) revealed that different label colors may create different sensory expectations on the part of consumers. For instance, whereas the colors red and black are likely to generate tangy flavor expectations, red and orange may be linked to fruity and flowery flavor expectations. The importance of labels for generating flavor expectations stems from the fact that both verbal and visual representations on the label are the only semiotic signs referring to the taste of wine when viewing the wine bottle prior to the purchase. The exposure to the wine color, as well as its smell, is delayed until the wine is opened and poured into a glass or decanter (Garber et al., 2000: 68). For Keller et al. (2012: 186), the packaging color of consumer goods is of significance importance. With reference to all the visual elements one may find on wine labels, Thomas and Pickering (2003:

69) contend that colors rank second in importance; only pictures/images are somewhat more important for wine consumers in their purchase decision.

According to Jackendoff (2007: 20), in our lives we have learned to connect the appearance and taste for a huge number of food types and drinks. Thus, we have developed a “visual-to-taste lexicon”. In other words, we have created “cross-modal knowledge” by connecting two kinds of mental structure. Over the last few years, in the vein of sensory marketing, research has been conducted on the impact of packaging color on flavour expectations and perceptions (Ares and Deliza, 2010; Piqueras-Fiszman and Spence, 2011; Huang and Lu, 2015; Barnett and Spence, 2016; Spence and Velasco, 2019).

Second, color may have an “interpersonal” function (Kress and van Leeuwen, 2002: 348); its role may be “to *do* things to or for each other”, like to utilize the color red in traffic lights to make people stop or to indicate mistakes in exam papers. Third, color may also have a function with respect to written texts as it may contribute to the coherence of a text. For example, in text books different colors are usually chosen for the main text of the book than for the review questions after each chapter. In advertisements, colors may serve the same function when, e.g., the blue of a tranquil lake is repeated in the blue of the package for a relaxation bath depicted in the advertisement. For the present study, we focus on the ideational function of colors on wine labels since colors may identify both the origin and quality of wine. Moreover, we make a distinction between heraldic and vivid colors.

Specifically, heraldic colors represent authenticity in consumers’ perceptions (Clifford et al., 2007), primarily through the use of metallic colors, such as silver and gold. However, many wine labels promoting wines on websites and apps use vivid colors, which evoke the idea of modernity, instead. In general, color saturation represents the vividness and intensity of color. Based on the presence or absence of saturation, we distinguish between chromatic and achromatic colors. While, an achromatic – or neutral - color lacks hues (e.g., white, gray, and black), a chromatic color shows even the smallest amount of hue (e.g., red, blue, yellow, and green) (MAU Art and Design Glossary). Although the role of colors in wine label design has been researched (Divard and Urien, 2001), to this day, very few studies (Pelet, 2010; Hong and Han, 2014) have focused on the phenomenon of heraldic colors shown on wine labels, in particular, when wines are offered on the Internet.

It needs to be mentioned that, in contrast to other chromatic colors, metallic colors, such as gold and silver, technically cannot be fully reproduced on a screen, whether on laptops, desktops, or handheld devices. As a matter of fact, the colors of objects shown on a screen may look only close to metallic colors, because the screen is shiny and reflects light and color. Any variation of the levels of brightness or saturation in the display would confuse the web designer, according to an executive web designer (Pelet and Lecat, 2014): *“There is no way that a non-shiny, non-reflective representation will look like it is shiny and reflective. The key to reproducing gold and silver on screens lies in the good usage of design software which provides image editing features that replicate the aspect of metallic colors”*.

In conclusion, while both icons (château, landscape, vine leaves, etc.) and symbols (words representing grape varieties, quality classifications, etc.) constitute the most important types of semiotic signs, colors serve primarily an ideational purpose with, especially, heraldic colors indicating the origin and quality of wine. Table 1 summarizes the different semiotic representations which may be employed for the design of wine labels.

*Table 1: Different semiotic representations for the design of wine labels*

<b>Types of semiotic representations</b>	<b>Examples with respect to wine labels</b>
<b>Icon:</b> resembles its referent (real world phenomena)	Landscape, château, ‘domaine’, wine grapes and leaves
<b>Index:</b> encodes spatio-temporal or cause-and-effect relations	Name of wine producer or brand shown in the center of the wine label (increases their salience)
<b>Symbol:</b> relation to its referent is arbitrary and conventional	Grape varieties, quality classifications, AOC label
<b>Colors with an ideational function:</b> identify specific, or classes of, people, places, things, and general ideas	Different label colors generating different flavor expectations on the part of consumers
<b>Vivid colors:</b> dark or bright colors (e.g., red, blue, yellow, and green); vivid colors have a high saturation.	The colors red, blue, green, pink, etc. on wine labels
<b>Heraldic colors:</b> constitute a limited palette of colors and patterns used in heraldry (armory).	The colors silver or gold on wine labels (represent authenticity)

Several authors have drawn on the paradigm of semiotics in their investigations of wine labels (Celhay and Remaud, 2018; Favier et al., 2019; Celhay et al., 2019). Järlehed and Moriarty (2018:



29) suggest the concept of “semiofoodscape”, which they define as “*a space where ideas about culture, locality and authenticity are performed, reconfigured and mobilized*”.

According to Järlehed and Moriarty (2018: 27), the following semiotic resources, among others, determine a “semiofoodscape”: food and beverages (foodstuffs); stores and restaurants (spaces); producers and connoisseurs (actors); eating, drinking, and branding (practices); geographic origin certifications (norms); product labels and tasting protocols (inscriptional genres); names, colors, and images (other semiotic resources). Referring to the concept of “semiofoodscape”, we propose the term “semiowinescape”, which is determined by the different semiotic resources which may occur in a winescape. In line with the terminology used to characterize a “semiofoodscape”, our research deals with, specifically, the AOC label (norm), as well as icons, colors, and visual complexity (other semiotic resources) found on wine labels (inscriptional genre).

### ***Visual complexity***

In view of the binary nature of signs (signifier/signified), according to Favier et al. (2019: 12), a specific degree of visually complex (elaborated) product packaging represents a signifier (denotation), while the consumers’ connotations related to the packaging, like brand image, attractiveness, and authenticity, constitute signifieds (connotation). For our study, among these signifieds, we selected the signified of authenticity evoked on the part of consumers in relation to the visual complexity of wine labels. In general, Pieters et al. (2010) distinguish between feature complexity (more details and variations in terms of, e.g., colors and edges) and design complexity (more complex design of shapes, objects, and their arrangements). Usually, when viewing a visual design, its visual complexity can be perceived after a few seconds (Sohn et al., 2017).

Research has investigated the influence of the level of complexity (elaborateness) of product packaging on consumers’ evaluations, like mental taste imagery or aesthetic appeal (Thomas and Capelli, 2018; Bigoin-Gagnan and Lacoste-Badie, 2018) as well as the impact of packaging on authenticity (Lee et al., 2019). However, there is scant research on the connection between the visual complexity of product packaging upon the perception of authenticity (Ambrose and Harris, 2011). This holds true even more for wine labels. However, Favier et al. (2019) have recently found a correlation between low visual complexity of wine labels and perceived authenticity. In the following we present the impact of perceived authenticity on purchase intention.

## 2.2. Influence of perceived authenticity on purchase intention

The indication of the origin of wine on its label is crucial for wine consumers. The origin may be expressed through both verbal and visual representations. As mentioned above, according to Puligadda et al. (2012), most consumers are mainly interested in two quality cues, namely, the origin and category of wine, which both appear on wine labels. The verbal representation *Appellation d'Origine Contrôlée* (AOC), which is connected to heraldic colors, serves as an important indicator of the origin of wine. Although there is no obligation to use heraldic colors for labels of AOC wines, according to the *Chambre d'Agriculture de la Gironde* (Chambre d'Agriculture de la Gironde, 2007), consumers intuitively create a link between heraldic colors and the AOC label. In fact, the labelling of wine represents one of the main discriminating factors for wine selection (Celhay et al., 2019). Several studies have confirmed the relevance of the regional origin for wine preference and choice; in other words, the country of origin may have a strong influence on wine sales (Famularo and Bruwer, 2010, Caracciolo et al., 2015).

The exploratory study we conducted for this article examines the link between the origin of wine and purchase intent. Hence, irrespective of the wine brand, AOC heraldic colors, and the authenticity they reflect, are of primary significance for the consumer's decision-making process. Besides the AOC label and the heraldic colors associated with it, iconographic elements may be applied to reinforce the perception of the authenticity of wine. One important icon, which is frequently utilized to point to the origin of wine, is the depiction of a château or 'domaine'. In our exploratory study, respondents viewed the representation of a château on a wine label as a typical example of an icon displayed on wine labels since it determines the terroir of the region where the wine comes from. The château shown on the label may look like its referent, *i.e.*, the real château located in the region where the wine is produced or it may represent a stylistic representation of the actual château in the region.

In general, when applying this representation, *i.e.*, château, consumers are likely to be assured of the quality of wine, which may lead to an increase in pleasure. Moreover, in the case of customers striving for authenticity during their search for a bottle of wine, some category-bound visual codes normally prevail (appellation, name of the bottler, alcohol level, nominal volume, serial number, sulfites, etc.). Breaking these codes may lead to distinct promotional advantages (Person et al., 2008), but, at the same time, consumers may have some doubts about the authenticity of wine. Henderson et al. (2004) demonstrate that a flourishing effect may result in not only the

reassurance of the consumer's choice, but also the arousal of positive feelings on the part of the consumer, such as pleasure. According to Orth and Malkewitz (2008), one normally associates natural labels, such as labels depicting a scenery, with flourishing ornaments. Such types of labels are prototypical of a region and are perceived as sincere, exciting, sophisticated, more authentic, and more pleasing.

Bloch (1995) suggests that, generally, products may elicit at least a moderate level of pleasure in consumers, including the arousal of attention and strong positive emotions. In view of packaging design, Krishna (2017: 48) argues that *"it not only creates expectations and provides information, but [...] also engages and thrills the consumer"*. At the same time, as the quest for an authentic and quality wine remains a major objective for consumers (Beverland, 2005; 2006; Lunardo and Guerinet, 2007) they need to be reassured of the origin and quality of wine. This need becomes even more important when shopping online, because, in this case, the label constitutes the most important source of information, besides the price and wine description. The evaluation of the authenticity and quality of wine is essentially restricted to the information provided on the wine label. This information may include images and labels – quality signs, like a gold medal, an award, or the 'BA' logo representing the Biological Agriculture Certification. Therefore, we propose the following hypothesis:

**H1a:** Authenticity of wine labels has a positive effect on pleasure.

In relation to brands, the interest in the notion of authenticity has recently heightened in both research on consumer behavior and managerial practice (Morhart et al., 2015). According to Beverland (2005: 1025), *"authenticity is projected via a sincere story that involves the avowal of commitments to traditions, passion for craft and production excellence, and the public disavowal of the role of modern industrial attributes and commercial motivation"*.

Ulin (1995) argues that by defining wine as a natural product, in comparison with an industrial mass product, social, cultural, and historical claims become internalized. According to winery owners, authenticity is mainly based on the concept of 'terroir' (even outside France) (Beverland, 2005). Cappeliez (2017) examined how the concept of 'terroir' is discursively determined in France and Canada. She found that the normative principles of 'terroir', such as expertise in quality

winemaking and historical tradition, are the same in these two cultural contexts. In general, the term ‘terroir’ can be defined as “the holistic combination in a vineyard environment of soil, climate, topography, and the ‘soul’ of the wine producer” (Guy, 2003: 2). Aurier et al. (2019) contend that the term ‘terroir’ represents an important cue for the differentiation between wines. Labels may express the link to the terroir, which can be viewed as a transfer of the image of the country and region to the product, thus, enhancing perceived quality. Through this transfer, the label may lead to more favorable purchase intentions. As mentioned above, on e-commerce websites or apps, labels represent the most important stimulus drawing the viewers’ attention to wine offers. Therefore, we propose the following hypothesis:

**H1b:** Authenticity of wine labels has a positive effect on buying intentions.

Adam et al. (2016) stress that emotions play a central role in the consumer decision-making process, even in an online context (Li et al., 2012; Quinton and Harridge-March, 2008; Yang and Kim, 2012). According to Quinton and Harridge-March (2008), wine is a complex product, because the wine experience involves both emotional and cognitive responses. The affective responses on e-commerce websites or apps are generally pleasure and stimulation (Machleit and Eroglu, 2000). In this research, pleasure derives from the purchase of a bottle of authentic wine, whose label shows cues pointing to its authenticity. Therefore, emotional responses may contribute directly to the building of attitudes and/or behavioral intentions (Koufaris, 2002; Lee and Chang, 2011). Hence, we suggest the following hypothesis:

**H2:** Pleasure has a positive effect on the intention of buying wine.

In the following, we present our assumptions on the role which colors, icons, and visual complexity may play in the relationship between the authenticity of wine and consumers’ experience of pleasure.

### 2.3. The moderating effects of colors, icons, and visual complexity on the link between authenticity and pleasure

Colors play a significant role in the distinction between classic and modern labels. Van Rompay et al. (2010: 23) state that “(website) designers should not only consider the literal content displayed by visual web features, but also the symbolic meanings communicated by elements such as layout, color and product visualizations”. Such symbolic meanings may have an impact on how consumers interpret the product and its price (Hsieh et al., 2018). Along the same lines, the use of foil on the label, such as gold or silver, or even red, may evoke prestige and usually refer to an authentic wine. In general, heraldic colors encompass metals (gold and silver), enamels (azure, gules represented by red, sand, green and purple) and fur (ermine and vair). The use of heraldic colors as the dominant color (background) as well as for the text and illustrations (foreground), at the same time, enhances the readability of the label due to the color contrast they create. Clifford et al. (2007) state that heraldic colors represent authenticity in consumers’ perceptions. Compared to heraldic colors, which are more likely to be perceived as traditional, vivid colors are seen as rather modern since the geometrical framework employed in modern color models consists in the three color-making attributes, namely hue, brightness (lightness) and saturation (chroma), arranged to define a three-dimensional space (Figure 1).

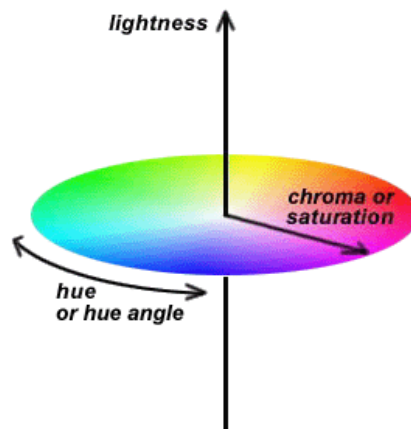


Figure 1: Geometry of color making attributes in modern color models (source: “Modern color models”)

The usage of vivid colors on wine labels and, hence, breaking the color code, *i.e.*, the simultaneous occurrence of heraldic colors and the AOC label, may lead to the connotation of newness, but, at the same time, may decrease perceived authenticity (Heilbrunn, 2006; Person et al.,

2008). However, when designing the label in accordance with the norms established by the wine industry in order to maximize the label's perceived authenticity, as described above, customers may derive pleasure and, thus, increase their intention of buying from a digital platform. In contrast, labels with vivid colors accompanied by unusual label shapes and images may be perceived as more 'exotic' than the labels of traditional producers using the AOC label. The effect between authenticity and pleasure seems to be greater when wine labels show heraldic colors compared to wine labels which feature vivid colors. Therefore, we propose the following hypothesis:

**H3a:** The impact of authenticity on pleasure is higher when the wine label shows heraldic colors compared to vivid colors.

As mentioned above, an icon resembles its referent, like a château which shows similarity to the real-world château. Celhay et al. (2017) as well as Morhart et al. (2015) demonstrate that both the terroir symbol (icon) and the visual complexity of labels function as category-based codes, which moderate the link between the perception of authenticity and pleasure. A château (icon) represents a straightforward and classical symbol that reassures the consumer of the authenticity of wine (Hagtvedt, 2011). Therefore, it can be assumed that the effect of authenticity on pleasure is greater when the wine label features a château compared to when no château is depicted on the label. In addition, nature-like images seem to be more authentic and sincerer (Orth and Malkewitz, 2008) than abstract images. Therefore, we put forward the following hypothesis:

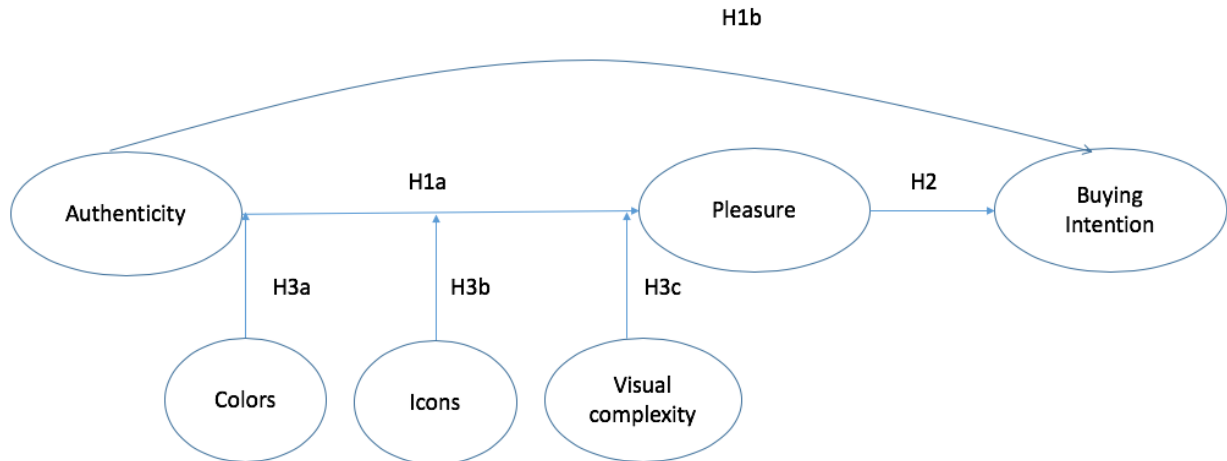
**H3b:** The impact of authenticity on pleasure is higher when the wine label shows a château compared to when the wine label does not depict a château.

Based on research defining the determinants of the visual complexity of advertisements (Pieters et al., 2010), some researchers have recently turned their attention to the visual complexity of websites, such as mobile online shops (Sohn et al., 2017) and webpages (Deng and Poole, 2010).

Deng and Poole (2010) show a positive correlation between the visual complexity of webpages and consumers' experience of pleasure. According to Deng and Poole (2010), the experienced pleasure through visual complexity usually results in the consumer's approach behavior towards the webpage. In relation to Champagne labels, Favier et al. (2019) have found that the simplicity of the design of Champagne labels connotes authenticity. Therefore, we formulate the following hypothesis:

**H3c:** The impact of authenticity on pleasure is higher when the wine label shows low visual complexity in comparison to high visual complexity.

In our model, we combine three categories of stimuli: colors, icons, and visual complexity. This is similar to Celhay et al. (2019) who have shown that the graphic design of wine labels (typeface, color, imagery, layout, ornaments and patterns), moderates the intelligibility of wine labels, according to the customers' culture. The three types of stimuli (colors, icons, and visual complexity) may trigger different levels of perceived authenticity on the part of the customer. For example, labels showing heraldic colors may be more likely to be associated with authenticity compared to labels showing vivid colors. In general, different combinations of the three types of stimuli may result in different degrees of buying intention mediated by pleasure. Figure 2 visualizes our conceptual model, which draws upon the SOR approach (Mehrabian and Russell, 1974), like Eroglu et al. (2001) who applied the SOR approach in their research with respect to online shopping.



*Figure 2: Conceptual research model applied*

### **3. Methodology**

To answer our research question we carried out two studies. For our exploratory study, we did in-depth interviews to gain important insights. Proceeding from the results of our exploratory study, we conducted a confirmatory study, which was based on an experiment.

#### **3.1. Exploratory study**

In our first study, consumers were asked in personal semi-structured interviews about the criteria by which they usually make their wine choices, irrespective of whether they were wine experts or novices in online shopping. Using the criterion of semantic saturation (Miles et al., 2018), we limited the number of interviews to 21 consumers. The respondents' profiles showed a nearly equal number of men and women with an average age of 25 years. To our knowledge, no research has yet focused on the question which influence label design characteristics exert on consumers' perception of the authenticity of wines sold online.

The interviews aimed at making the participants react to the three following topics:

1. The elements shown on wine labels that influence their choice;
2. Their emotions during their last visit on a website or app selling wine;
3. Their perception of label authenticity, which is likely to increase the chances to return to the e-commerce website or to spend a longer period of time searching for information on the website.



The interviews led us to distinguish between ‘heraldic’ vs ‘vivid colors’. In addition, based on our interviews, we chose the château as a typical icon, since it was the icon most frequently mentioned by our respondents. In our model (Figure 2) we use the term ‘visual complexity’ with “high visual complexity” referring to “dense” (heavy) labels and “low visual complexity” to “non-dense” (minimalist) labels. The terms “dense” and “non-dense” were used by our respondents and showed the highest occurrence in the interviews. Each interview was transcribed, which, in general, took between 15 and 53 minutes.

Subsequently, the respondents were exposed to a set of labels that showed all the possible combinations of the three criteria, *i.e.*, heraldic vs. vivid color, with vs. without château, as well as high vs. low visual complexity. Finally, the respondents validated the eight labels shown in Table 3. For example, the label on top of the left side, was assessed as the one with a château, showing heraldic colors and high visual complexity.

### 3.2. Results of the exploratory study

Whether in a wine shop, a supermarket, or on the Internet, for the majority of the respondents a label appears to convey authenticity when it shows a château or ‘domaine’. The same seems to be the case in relation to specific colors and low visual complexity. Refer to Table 2 for example quotations and the number of occurrences of the different visual design elements most frequently mentioned.

Table 2: Extracts from the interviews on the authenticity of the labels with respect to 1) the presence / absence of a château, 2) colors, and 3) visual complexity

	<b>Château/‘Domaine’</b>	<b>Colors</b>	<b>Visual Complexity</b>
<b>Number of occurrences</b>	11	10	16
Extracts from the interviews	C2: <i>“An authentic wine is a wine of AOC, a wine harvested on site, usually at the castle with the winemakers directly, bottled at the estate”</i>	C15: <i>“As for myself, concerning the label, I would concentrate on very simple colors, black or gray, on a white background<sup>1</sup>”</i>	C19: <i>“The label of an authentic wine: very simple, classic. The label shows a drawing in pencil, charcoal, finally what you want in black and white, the</i>

<sup>1</sup> We defined the colors mentioned in the verbatim quote “As for myself, concerning the label, I would concentrate on very simple colors, black or gray, on a white background” as heraldic.

			<i>drawing of the estate is very light</i>
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Our subsequent confirmatory study included an online experiment. As icon we chose a château, which constitutes an iconographic example of a winery.









### **3.3. Confirmatory study**

The description of our sample (n=215) is presented in Appendix 1. The sample consisted of 64 % males; 20 % of the respondents were under 20 years old, 38 % between 20 and 34 years, and 20 % between 35 and 44 years. Among the respondents, 35 % had a bachelor's degree and 43 % had, at least, a master's degree. 38 % had a net monthly household income of less than 1,800 € and 24 % had more than 2,600 €.

#### ***Experimental design***

We concentrated on front labels of wine bottles in our study. Based on the results of the exploratory study, we created a full factorial plan featuring eight wine labels. These labels showed different combinations of the following three dimensions: heraldic vs. vivid colors, château vs. without château, and low visual complexity vs. high visual complexity (Table 3).

Table 3: Visual stimuli for the confirmatory study

1	Château-high visual complexity-heraldic colors	1. Ch-D-H		2. Ch-D-C	
2	Château-high visual complexity-vivid colors				
3	Château-low visual complexity-heraldic colors	3. Ch-nD-H		4. Ch-nD-C	
4	Château-low visual complexity-vivid colors				
5	Without château-high visual complexity-heraldic colors	5. sCh-D-H		6. sCh-D-C	
6	Without château-high visual complexity-vivid colors				
7	Without château-low visual complexity-heraldic colors	7. sCh-nD-H		8. sCh-nD-C	
8	Without château-low visual complexity-vivid colors				
<b>Icon:</b> Presence/absence of château: Ch = château, sCh = without château		<b>Visual complexity:</b> High/Low, D = high, nD = low		<b>Color types:</b> Heraldic/vivid colors, H = heraldic, C = vivid	

### Manipulation check

In order to validate the assumptions derived from the exploratory analysis, an online experiment was conducted. Its aim was to measure the effects of the visual design elements under investigation on the customers' perception of authenticity and on their buying intention in an e-commerce setting.

In particular, we designed a fictitious e-commerce website which showed a variety of wine bottles. The website, which used responsive web design (adaptable to all screen sizes and devices), had a neutral background color (light grey, #D3D3D3) to avoid any distractions for the respondents. The website was pre-tested to ensure that the background color did not interfere with the colors of the labels. This condition was fulfilled. The website was dynamic for two purposes:

first, to allow random assignment of wine labels from the 8 labels of the factorial plan and, second, to collect data in a statistically exploitable format.

All subjects were tested for color blindness by means of the highly reliable Ishihara test (Lanthony, 2005). This made us exclude around 5% of the total number of respondents from the experiment. Then, each respondent was asked about their vision. They all had perfect, or corrected-to-perfect vision. Moreover, we used the convenience sampling method, which led to a response rate of 34%. The number of questionnaires we could exploit was 215.

We controlled the effect of the manipulation of the factors icon, color, and visual complexity in applying the Kruskal Wallis test to authenticity, pleasure, and buying intention. Concerning authenticity, the test (KW Test 20.807, with  $p=0.004$ ) shows that there is a difference between the eight labels. The same holds true for pleasure (KW Test 28.532,  $p=0.000$ ) and buying intention (KW Test 21.534,  $p=0.003$ ).

### *Measurement*

The scales used in the experiment were: authenticity, adapted from Camus (2004); purchase intention, adapted from Yoo and Donthu (2001); and pleasure, measured with PAD (Mehrabian and Russell, 1974). The descriptive statistics and intercorrelation items are presented in Appendix 2. Finally, we asked the respondents about their knowledge of wine.

In order to establish the unidimensional character of the constructs, we performed a factor analysis with promax rotation. Table 4 shows a description of the scales and their psychometric properties.

*Table 4: Description and psychometric properties of the measures*

Variable	Items	Loadings	$\rho$	$\rho_{vc}$
<b>Authenticity</b>	Auto1 The label reinforces the image that this is natural wine.	0.89	0.82	0.7
	Auto3 The label reinforces the image that the wine does not contain artificial ingredients.	0.78		
<b>Buying intentions</b>	Buy1 I will definitely buy products from this website in the near future.	0.96	0.93	0.83
	Buy2 It is likely that I will buy on this website in the near future.	0.88		
	Buy4 I am planning to buy on this website in the near future.	0.89		
<b>Pleasure</b>	Plais1 Unhappy - Happy	0.86	0.81	0.71
	Plais2 Sad - Joyful	0.86		
	Plais3 Desperate - Hopeful	0.88		

Plais5	Upset - Content	0.8
Plais6	Unsatisfied - Satisfied	0.81

To measure the reliability of the constructs we used the  $\rho$  indicator (Jöreskog, 1971) instead of the Cronbach  $\alpha$ . The reason is that the former represents a more powerful test with scales of limited (less than four) items, small samples, and/or a composite reliability for the same construct (Peterson 1994). Then, the convergent and discriminant validity of the measures were assessed as proposed by Fornell and Larcker (1981). In particular, the convergent validity was measured by using the average variance extracted from each construct, which was well above 0.5, which provided evidence for the convergent validity of the measures. Moreover, the average variance extracted for each construct exceeded by far the squared correlation between constructs, which supported the discriminant validity of the measures. Hence, the results are sufficient for establishing convergent and discriminant validity. The statistical results are presented in Table 5.

*Table 5: Evidence for convergent and discriminant validity*

	pvc	Authenticity	Buying Intentions	Pleasure
Authenticity	0.846			
Buying Intentions	0.915	0.246		
Pleasure	0.792	0.092	0.116	

Note.  $r_{cv}$  = Rho of convergent validity

The number below the diagonal represent the shared variances (squared correlations) among the constructs.

### 3.4. Results of the confirmatory study

*Test of the model.* A structural equation modeling was implemented using the EQS model (EQS 6: Bentler and Wu, 2002) to test the impact of authenticity on buying intention. Using a confirmatory factor analysis (EQS 6, Bentler and Wu, 2002), the study estimates whether the initial factor structure of the electronic service quality concept is reasonable. Mardia's normalized kurtosis is 37.33, hence, more than 3. In order to avoid any problems with multivariate normality, the analysis applies the robust method (Bentler and Wu, 2002).

A bootstrap approach was used to avoid the problem of the sample size and the complexity of the model (Bone et al., 1989). The use of a CFA provides results, which allow for a thorough examination of measurement validity. The overall structural model exhibited a good fit ( $\chi^2$  44.839;

$p=.065$ ; GFI = .942; AGFI = .899; CFI = .991; RMSEA = .043; SRMR = .035). The measurement and structural parameters are presented in Table 6.

Table 6: Measurement and structural parameters

	parameter	t	R <sup>2</sup>
Authenticity →AUT1	0.900		0.809
Authenticity →AUT3	0.772	9.762	0.596
Buying Intention →BUY1	0.938		0.880
Buying Intention →BUY2	0.875	20.680	0.765
Buying Intention →BUY3	0.950	27.929	0.902
Buying Intention →BUY4	0.913	23.855	0.834
Pleasure →PLEAS1	0.837		0.701
Pleasure →PLEAS2	0.868	22.137	0.753
Pleasure →PLEAS3	0.875	15.661	0.766
Pleasure →PLEAS5	0.822	13.919	0.675
Authenticity --> Buying Intention	0.479	5.465	
Pleasure --> Buying Intention	0.206	3.261	0.345
Authenticity --> Pleasure	0.372	4.321	0.139

H1 proposes a positive relationship between (a) authenticity and buying intention (b) pleasure and buying intention, respectively. As hypothesized, authenticity exerts a positive effect both on pleasure ( $\gamma=.479, p < .001$ ) and buying intentions ( $\gamma=.372, p < .001$ ). H2 examines the relationship between pleasure and buying intention. Consistent with H2, the structural parameter estimates are significant and positive, with pleasure positively affecting buying intention ( $\gamma =.206, p < .001$ ). Moreover, R<sup>2</sup> is 0.35, indicating an acceptable predictivity of buying intention.

*Test of mediating effects.* In our model, pleasure is posited to mediate the effects of authenticity on buying intention. In order to test these mediating effects, the procedure used by Iacobucci et al. (2007) with reference to structural equation modeling was retained. Hence, a partial mediation of pleasure with regard to the perception of authenticity is validated ( $Z = 2.77$ ; MP = 21%).

*Test of moderating effects.* A multiple-group analysis investigated the role of *heraldic/vivid colors* as a moderator and, thus, estimated the proposed theoretical model on covariance matrices representing the heraldic versus vivid colors. The analysis yielded an acceptable fit (CFI = .983; RMSEA = .041).  $\Delta\chi^2 = 3.495$  with  $p = .062$  indicates that the difference is significant and the effect

of *heraldic/vivid colors* as a moderator is validated (H3a) as Table 7 shows. Precisely, the results indicate that consumers who are shown labels with heraldic colors (vs. vivid colors) experience a stronger effect of authenticity on buying intention ( $\beta = .593$  vs.  $\beta = .358$ ).

*Table 7. Standardized structural path coefficients for the overall, heraldic and vivid samples*

	Global parameter	T	Heraldic parameter	T	Vivid parameter	T	p
Authenticity--> Pleasure	0.372	4.321	0.376	3.308	0.328	2.365	0.588
Aauthenticity--> Buying Intentions	0.479	5.465	0.593	5.158	0.358	2.606	0.062
Pleasure--> Buying Intentions	0.206	3.261	0.190	2.244	0.171	1.769	0.489

The p-values indicate if there is a significant Chi<sup>2</sup> difference in the parameter estimates found by the multigroup analyses.

In the case of the presence of a *château/without château* as a moderator, the model has a good fit (CFI = .983; RMSEA = .042).  $\Delta\chi^2 = 0.264$  with  $p = .607$  indicates that the difference is not significant and the effect of *château/without château* as a moderator is not validated (H3b). Refer to Table 8.

*Table 8. Standardized structural path coefficients for the overall, château and without château samples*

	Global parameter	T	Château parameter	T	Without Château parameter	T	p
Authenticity--> Buying Intentions	0.479	5.465	0.505	4.243	0.442	3.465	0.607
Authenticity--> Pleasure	0.372	4.321	0.406	3.938	0.261	2.03	0.454
Pleasure--> Buying Intentions	0.206	3.261	0.228	3.379	0.170	1.761	0.654

The p-values indicate if there is a significant Chi<sup>2</sup> difference in the parameter estimates found by the multigroup analyses.

Finally, for the role of *high/low visual complexity* as a moderator, the model has an acceptable fit (CFI = .994; RMSEA = .026).  $\Delta\chi^2 = 4.704$  with  $p = .030$  indicates that the difference is significant and the effect of *high/low visual complexity* as a moderator is validated (H3c). Precisely, results reveal that consumers who are shown high visual complexity (vs. low visual complexity) labels experience a lesser effect of authenticity on buying intentions ( $\beta = .255$  vs.  $\beta = .705$ ); see Table 9.

Table 9. Standardized structural path coefficients for the overall, high/low visual complexity samples

	Global parameter	T	High visual complexity parameter	T	Low visual complexity parameter	T	p
Authenticity--> Pleasure	0.372	4.321	0.352	2.96	0.371	2.850	0.62
Authenticity--> Buying Intentions	0.470	5.465	0.255	2.073	0.705	6.223	0.030
Pleasure--> Buying Intentions	0.206	3.261	0.307	3.597	0.027	0.34	0.38

The p-values indicate if there is a significant Chi<sup>2</sup> difference in the parameter estimates found by the multigroup analyses.

#### 4. Discussion

This work investigates consumers' perception of the authenticity of wine labels and, in turn, their perception of the authenticity of wines marketed online. Hsieh et al. (2018) underline the importance of consumers' perception of wine authenticity. From a consumer behavioral perspective, this work also explores the potential mediating effect of pleasure between perceived authenticity and consumers' purchase propensity. Another aim is to determine the possible moderating effects of visual semiotic representations on the link between authenticity and pleasure. Previous studies (Carsana and Jolibert, 2018; Celhay et al., 2017; 2019; Pelet et al., 2017; Pelet and Lecat, 2014; Thomas and Pickering, 2003) have helped us to determine essential label features by which consumers usually choose a bottle of wine, because these features convey, partly, wine authenticity. Celhay et al. (2017) argue that, in general, studying visual features, *i.e.*, visual semiotic representations, on wine labels helps to reveal the most commonly found visual characteristics and provides clues to the meaning attached to these visual characteristics. It needs to be mentioned that wine labels represent essential elements of 'semiowinescapes' (Järlehed and Moriarty, 2018).

In our exploratory study, color type (heraldic vs. vivid), the presence or absence of a château or 'domaine' (icon), as well as the level of visual complexity (high vs. low), have turned out to be the most frequently mentioned visual representations. However, visual codes have somehow become the norm for certain types of wines, because they communicate about the origin and quality of wine.

Our confirmatory study shows a full factorial design, which demonstrates to professionals in the wine industry which visual representations marketers generally utilize in designing wine labels. In the present paper we distinguish between labels showing heraldic colors and labels with vivid colors, *i.e.*, labels with a classic (traditional) image compared to labels with a modern image. Measurement



scales have allowed us to gauge whether the affective state (pleasure) accurately mediates the experienced cognitive responses (perceived authenticity) and consumer behavior (purchase intention). We have been particularly interested in the emotions experienced by consumers when purchasing wine on the Internet. We conclude that the mediating effect of pleasure appears to be significant.

In view of the moderating variables chosen, our confirmatory study reveals that relatively higher purchase intentions seem to be achieved with heraldic colors since these colors appear to reassure consumers of the authenticity of wine. Heraldic colors shown on labels may be judged by consumers as a ‘risk reducer’, since heraldic colors may diminish the perceived risk, e.g., of purchasing the ‘wrong’ wine. Johnson and Bruwer (2008) as well as Lacey et al. (2009) view the quick scanning of the label of a wine bottle as part of a risk-reduction strategy. The fact that heraldic colors represent authenticity in consumers’ minds, in particular through the use of metallic colors, such as silver and gold, has been confirmed by Clifford et al. (2007).

Furthermore, our results demonstrate that consumers who are exposed to visually highly complex (vs. visually rather simple) labels may experience a lesser effect of authenticity on buying intentions ( $\beta = .255$  vs.  $\beta = .705$ ). This confirms Favier et al. (2019), who found a significantly positive relation between the visual simplicity of Champagne labels and the perceived authenticity of Champagne. This result of our study emphasizes consumers’ preference for ‘quiet’ over ‘loud’ label designs (Han et al., 2010), with ‘quiet’ labels usually being connected to discrete brands without showing heavy signals of brand recognition. Consumers may recognize subtle and non-prominent cues of the brand and enhance their pleasure in rather inconspicuous consumption (Eckhardt et al., 2015).

Therefore, it has become evident that the effective design of labels seems to be linked to the perceived typicality and authenticity created by means of particular cues, such as colors, in particular, heraldic colors, and low visual complexity. The effect of *château/without château* as a moderator is not validated in our confirmatory study. One of the reasons may be that since wine usually shows many pieces of information referring to the origin of the product, the depiction of a *château* may not additionally raise the level of perceived authenticity.

The goal of our study goes beyond previous studies conducted on the effects of the label design of wines sold online (Cho et al., 2014; Lobstein et al., 2017; Cassar et al., 2018; Festa et al., 2019)

in the sense that our study takes heraldic colors into consideration. The role of such colors in wine marketing has not been inquired in the literature, despite the fact that they are frequently applied in the world of ‘traditional products’ (food and beverages), such as wine and cheese (Caputo et al. 2018). Moreover, we contribute to the scarce literature on not only the authenticity of label design of wines (Beverland, 2006; Lunardo and Guerinet, 2007; Escandon-Barbosa and Rialp-Criado, 2019), but also, from a general perspective, the authenticity of products sold online (Davis et al., 2019: 17).

Our findings may encourage the development of concrete guidelines for the wine industry to help wine growers, or other wine professionals, to design labels which increase consumers’ perception of authenticity. Furthermore, our results call for online merchants to focus on the technical quality of the visual representations depicted on wine labels which point to the quality of wine. The reason is that a high level of image compression and resolution are important in providing the necessary indications with respect to wine quality. The goal is to replicate the actual colors of the actual label, especially when it shows heraldic colors, as these cannot be reproduced on a digital device, as mentioned above. There is a high risk of a poor reproduction of colors, and, hence, the consumers’ perception of low authenticity.

## **5. Limitations and directions for future research**

The limitations of our research are the restrictions in our respondents’ profiles as well as the possible discrepancy between their Internet-use behavior and their purchasing power. A screening of the respondents, according to both their general expertise in the use of e-commerce websites or apps and their familiarity with purchasing online, may have allowed differentiating between experts and novices in buying wine online. Moreover, a distinction of respondents, according to both their level of involvement and their purchase frequency, could have been made (Mueller and Szolnoki, 2010). The reason is that highly involved consumers may pay less attention to wine labels compared to consumers who have a low involvement. Similarly, higher purchase frequency may induce customers to turn less to labels. Moreover, consumers may be less sensitive to the aesthetic dimension of labels if they attach a high importance to the price of wine or if they frequently buy wine. In contrast, consumers may concentrate on the aesthetic dimension of labels, in the case of low involvement or when online purchases are made rather occasionally.

In our research, we consider the evaluation of packaging design from a largely analytical perspective, based on three criteria: heraldic vs. vivid colors, with château vs. without château, high vs. low complexity. However, Henderson et al. (2004) as well as Orth and Malkewitz (2008) propose the adoption of a rather holistic approach. They suggest applying the following criteria: natural, harmony, elaborate, size, symmetry, compressed, flourish, and weight. Based on these criteria, Orth and Malkewitz (2008) present, with wine as an example product, a typology of packaging design: massive, contrasting, natural, delicate, and nondescript. As a consequence, when considering this holistic approach, consumers may react more intensely, and the level of pleasure evoked by the label may be higher.

Due to the fact that e-commerce websites can be visited in different countries, or regions, where semiotic representations (colors, icons, etc.) may not arouse the same connotations on the part of the customers, culture-bound differences may have been considered in this paper. Generally, culture influences customers' use of mobile commerce and their attitudes towards it (Harris et al., 2005; Lee et al., 2002). More specifically, research has explored the influence of culture on consumer behavior in an attempt to explain the differences among customers in their perceptions and reactions to colors (Kim et al., 2004; Manrai and Manrai, 1996). Thus, the impact of culture on the perception of semiotic representations in online retailing of wines may be examined in future research with the goal of adapting communication to different cultures.

Future research may focus on the label design of luxury Champagne houses. These houses link their expensive cuvées to haute couture fashion and “artify” them, as reported by Yeung and Thach (2019: 139): “*The flashy metallic bottles of vintage Armand de Brignac and special editions of Dom Pérignon are examples of this, as well as the stylized flowers of Perrier-Jouët vintage rose*”. Hence, in view of the packaging of luxury Champagnes sold online, the impact of heraldic, *i.e.* metallic, colors, on the perception of authenticity may be explored.

Finally, the investigation of the moderating role which packaging colors may exert on customers' perceived authenticity may be extended to other product categories. For example, there is evidence that the packaging of cheese often shows heraldic colors. Neacșu (2019) and Gil et al., (2017) have ascertained the significance of the packaging colors of dairy products for consumers' product perceptions.

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## Appendices

### *Appendix 1: Sample characteristics*

Gender	Female	36.3
	Male	63.7
Age	Less than 25 years	20.9
	Between 25 and 34 years	38.1
	Between 35 and 44 years	20.5
	Between 45 and 54 years	8.4
	Between 55 and 64 years	10.2
	More than 65 years	1.9
Education level	BAC	6
	BAC plus 3 years	7
	BAC plus 4	34
	BAC plus 5	43
	No diploma	8
Revenu	Less than 500 euros	14.9
	Between 500 and 999 euros	9.8
	Between 1,000 and 1,399 euros	13.5
	Between 1,400 than 1,799 euros	8.8
	Between 1,800 than 2,199 euros	7.9
	Between 2,200 than 2,599 euros	5.6
	More than 2,600 euros	24.2
Don't want to comment	15.3	

*Appendix 2: Descriptive statistics and inter-item correlations*

	Mean	standard deviation	Aut1	Aut3	Buy1	Buy3	Buy4	Pleas1	Pleas2	Pleas3	Pleas5
Aut1	4.61	2.045	1								
Aut3	4.25	1.953	0.695	1							
Buy1	3.76	1.876	0.478	0.422	1						
Buy3	3.93	1.959	0.457	0.385	0.883	1					
Buy4	3.63	1.832	0.462	0.472	0.856	0.879	1				
Pleas1	4.75	1.663	0.327	0.246	0.334	0.338	0.246	1			
Pleas2	4.69	1.624	0.26	0.173	0.268	0.292	0.217	0.716	1		
Pleas3	4.66	1.514	0.303	0.218	0.32	0.355	0.277	0.759	0.748	1	
Pleas5	4.83	1.604	0.328	0.197	0.266	0.327	0.242	0.657	0.753	0.703	1