Significance of verbal and visual cues in communicating perfume properties over the Internet

Belem Barbosa*, Zaila Oliveira**, Valentina Chkoniya***, Mehdi Mahdavi****

* Assistant Professor, School of Economics and Management, University of Porto (belem@fep.up.pt)

** Christus University Center UNICHRISTUS, Brasil (zaila.oliveira@unichristus.edu.br)

*** Universidade de Aveiro (valentina.chkoniya@ua.pt)

**** PhD candidate in Marketing and Strategy, University of Porto (m_mahdavi1982@yahoo.com)

Abstract

This article fills a gap in the literature by exploring e-shoppers' views on the ability of verbal and visual cues to represent scents of unknown perfumes. In-depth face-to-face interviews were conducted with 27 consumers from Brazil, Iran, and Portugal. Results demonstrate that visual cues could complement verbal descriptions in conveying the type of scent of perfumes. In addition, this study identified a set of associations between several colors and types of scents. Overall, this article argues that consistent combinations of perfume components' symbolic and sensory verbal descriptions, colors, and images should be developed to effectively convey the scent of an unknown perfume, which can attract more e-shoppers and eventually boost online sales. Cross-cultural comparisons are also highlighted. The present study advances the knowledge of how perfume companies and e-tailors can take the advantage of implementing sensory cues to facilitate the online purchase of a typical experience product.

Keywords: consumer behavior, experience goods, online shopping, perfume, sensory marketing

Introduction

In recent years, online shopping has been one of the most flourishing research topics in marketing and consumer behavior. Despite an impressive body of literature on the subject, some relevant aspects and sectors are still disregarded, one of which is perfume online purchase behavior. Surprisingly, studies on online consumer decision-making regarding perfume are still rare.

This article argues that online sales of perfume is a sophisticated task, particularly if the buyers have no previous knowledge of the scent characteristics. What makes this task even more challenging is the fact that among all human senses, sense of olfaction, together with sense of touch/haptics, is possibly more emotional than any other senses (Petit, Velasco, & Spence, 2019). While the extant literature addresses the difficulties of selling experience goods online, not enough research has explored the efficacy of scent representation by online stores. Thus, the current study aims to fill this gap by exploring consumers' experiences buying perfume online using verbal descriptions and visual cues of scent.

As stressed by Weathers, Sharma and Wood (2007), understanding the impact of online communication strategies in consumer evaluations of products is essential for retail managers to enhance product display and effectively deal with customers. Furthermore, Lim (2002) believes that optimal experience among e-shoppers can be achieved through diversity of sensory features, i.e., audio-visual stimuli, provided by the online stores which could consequently result in more enjoyable purchase experience and loyalty towards the online outlet. Congruently, Petit *et al.* (2019), by drawing on the theory of embodied cognition, postulate the potential influence of sensory marketing on consumers' online purchase decision making when the only means of understating the products' features is confined to a computer screen and probably speakers. Likewise, understanding the impact of verbal and visual communication that commonly intends to transmit perfume characteristics is expected to be of high value for perfume manufacturers and sellers intending to boost their online sales. Consequently, this article tackles the following research question:

RQ: How do verbal descriptions and visual cues e-shoppers to identify the scent of perfume?

The rest of the paper is organised as follows. The following section presents the most relevant contributions in the literature regarding the facilitators of buying perfume online. Then, we describe and present the results of a qualitative study comprising 27 in-depth interviews that employed participants from Brazil, Iran, and Portugal with experience in online purchasing of perfume. The conclusion, implications for managers, study's limitations, and suggestions for future research are also provided.

Literature review/Theoretical background/Lore ipsum

Extant literature provides evidence that because of the importance of olfactory communication in perfume buying process, online stores are not consumers' first choice (Zhang, Ge, Gou, & Chen, 2018) and are associated with high levels of perceived risk (Alrawad et al., 2023; Alkis & Kose, 2022; Faqih, 2022; Bashir et al., 2021; Bonnin, 2020;Kacen, Hess, & Chiang, 2013; Claudia, 2012). Lian and Yen (2013) note that experience goods are more difficult to sell online. Accordingly, Schifferstein and Howell (2015) emphasize the difficulty that both consumers and companies confront with communicating scents properties while the real scent is absent in the online environment.

Indeed, the lack of physical access to products, namely because of the absence of senses of touch and smell to evaluate the products features (De Canio & Fuentes-Blasco, 2021; Silva *et al.*, 2021; Kühn, Lichters, & Krey, 2020; Rathee & Rajain, 2019; Venkatesh, Speier-Pero, & Schuetz, 2022), are amongst the greatest limitations of e-commerce stressed by the extant literature. Regarding perfume, these limitations are accepted to be even more critical. In fact, these are characteristics commonly attributed to experience goods.

As explained by Chiang and Dholakia (2003), a common categorisation of goods within the domain of shopping is either search or experience. Search goods are the ones that can be evaluated by external information gained prior to purchase (Chiang & Dholakia, 2003), while experience goods need to be personally evaluated by using one's senses (Weathers et al., 2007; Chiang & Dholakia, 2003). As a result, Chiang & Dholakia (2003) infer that this need for personal checking in the case of experience goods explains the lower online purchase intentions for such goods. Peterson, Balasubramanian and Bronnenberg (1997) state that for those who seek for search goods (e.g. books), the Internet could be an appropriate purchase channel, while experience goods (e.g. perfume), due to their innate characteristics, are not likely to satisfy

the online buyers. Thus, they conclude that online selling might not be a proper substitute for traditional brick-and-mortar stores when consumers seek for experience products.

Verbal information on perfume specifications

Since the preliminary mission of verbal and visual contents of online store's website is to inform e-consumers of the product features, research has shown that such information design has a positive association with perceived ease of use, usefulness, and online shopping acceptance by e-shoppers (e.g., Singh & Liébana-Cabanillas, 2022; Wang, Yu, Zhu, & Zheng, 2022), pleasure and consumer's approach behavior (Wu, Wang, & Yan, 2020), and urging consumers to buy impulsively (Zafar, Shahzad, Ashfaq, & Shahzad, 2023; Sarah, Goi, Chieng, & Taufique, 2021). Furthermore, Gao and Wu (2010) state that sufficient and relevant information can build up customers' trust in the online vendor and boost purchase intention.
As stressed by Ballantine (2005) and Weathers *et al.* (2007), one important means to deal with e-shoppers' uncertainty and perceived risks associated with online shopping is providing detailed information about the products. For instance, regarding the verbal cues of the web page, Bleier, Harmeling, and Palmatier (2019) express that these cues encompass written words. In their study, in order to investigate how design elements shape e-shoppers' online experience, they considered linguistic style, descriptive details, the number of bulleted features, and return policy information statements. This salience of website visual cues and informativeness has been even more emphasized by scholars as a consequence of the recent covid-19 pandemic. For instance in the domain of online food services, Brewer and Sebby (2021) have realized that both visual and informativeness of online restaurants' menu (i.e., verbal cues) indirectly impact customers' purchase intention through mediating effects of desire for food and perceived convenience of online food ordering. Most recently, in order to show how verbal/phonetic design of a brand name can influence customer's product evaluations and purchase decision while taking into account the olfactory inherent properties of a given product, Carnevale, Hadi, Luna, and Pogacar (2023, p.10) have suggested that

> "Marketers of unpleasantly scented products may benefit from naming their products with category incongruent words or sounds, so as to reduce consumer reliance on the product's olfactory properties when making product assessments and purchasing decisions".

Regarding perfume, type of scent is arguably the most important characteristic that consumers need to make their purchase decision based on, thus providing detailed information about the scent type must be a priority for online sellers. Perfume scent is commonly classified in families (e.g. floral, fresh, leather, oriental, woody), subgroups (e.g. fresh scents includes fruity and citrus), notes (top, middle, and base), and aromatic compounds or sources (e.g. amber, camphor, cinnamon, lemon, rose). Recognising the importance of website informativeness, Wolfinbarger and Gilly (2001) further argue that it is one of the key features which goal-oriented online shoppers associate with increased freedom and control while purchasing online. On the other hand, although the difficulty "English" speakers might face when verbally addressing odors and odors properties, Majid (2021) is still optimistic about "non-English" speakers who are believed to be more adept at talking and explaining olfactory properties. She believes that such skills could be "the result of ecological, cultural, or genetic factors or a combination thereof" (Majid, 2021, p.111). Clearly, informativeness regarding scent characteristics is an inescapable aspect for online stores that sell perfume. Still, Engen (1982) alerts that communicating scents properties verbally is difficult. Consequently, perfume manufacturers and sellers

have long explored alternative ways to express scents' properties with particular emphasis on the use of color and images with this regard.

Visual cues of perfume scent

Scott (1994) define visual elements as those presented in photographic or illustrated form that communicate symbolic meaning and pictorial information. These may include lifestyle photos, photo size, and product videos (Bleier *et al*., 2019). Li and Yeh (2010) also consider color, photographs, font style, and layout as elements of design aesthetics for websites. From the consumer standpoint, Wells, Valacich, and Hess (2011) and Ryu and Ryu (2021) infer that such visual elements can affect e-shoppers' experiences, namely because products' and sellers' quality could be also evaluated based on such visual design. In fact, Bilgihan, Kandampully, and Zhang (2016) note that website credibility and quality are often judged by e-shoppers based on visual design, and therefore recommend that companies which offer services and products online through different online channels, (e.g. company's website, official Twitter account) should consider the same color and pictures through all their online displays. Overall, attractive and pleasurable website's stimuli were shown to boost consumers' positive responses (Liu, Chou, & Liao, 2015; Sokolik, Magee, & Ivory, 2014). What is more is that visual attraction have been found to improve e-shoppers' interaction with web page stimuli (Chou, Chen, & Lin, 2015).

In addition, authors such as Scharf and Volkmer (2000) propose that using colors in perfume communication could be a proper substitute in the absence of real smells. In fact, organized connections exist between odors and colors and it appears that language plays a key role in these connections (De Valk, Wnuk, Huisman, & Majid, 2017). Lin, Cross, Laczniak, and Childers (2018) also conclude that sensory information assists brain to relate conceptual and semantic information. In particular, they state that the effectiveness of olfactory imagery is supported by the power of visual information in triggering sensations related to other sensory perceptions.

Consequently, Schifferstein and Howell (2015) mention that perfume companies use colors in order to communicate scents' properties, even though the impact is expected to be indirect. These authors explain that when facing visual cues, consumers' perceptual, semantic, or affective mechanisms generate cross-modal correspondences. In brief, they state that similar neural patterns produce perceptual stimulus representations, although different sensory receptors generate such representations. Regarding the semantic mechanism, the process is explained by Schifferstein and Howell (2015, p.18):

> *"When seeing the brown color of cinnamon, people are likely to think of a brown color when they smell cinnamon on a subsequent occasion. Even when people experience difficulty in identifying the smell of a banana, this odor may elicit the association with fruit or even more general, with food. Thereby, these associations limit the range of colors that seem appropriate."*

Furthermore, Zellner, Bartoli, and Eckard (1991) state that impacts on intensity, pleasantness, and edibility judgments of color facilitate odor identification. In fact, odors encountered daily by people have associations with certain colors. For instance smelling lemon scent brings to mind the color yellow (Goubet, Durand, Schaal, & McCall, 2018). In one interesting experiment, participants were asked to match different types of wine odors with selected colors. Some significant correlations have been reported by Heatherly, Dein, Munafo, and Luckett (2019). For instance, the strongest correlation was between smoky chardonnay and

yellow. Floral aroma was correlated with green, citrus with green and brown, and buttery odor with yellow. They have also reported a weak correlation between vegetable chardonnay and red.

Overall, images and colors are accepted to be capable of regulating performance and perception of olfaction (e.g. Seo & Hummel, 2010; Stevenson & Oaten, 2008). Packaged and boxed products, in particular those presented online for sale that hold olfactory attributes with them, are only presented visually through images and advertisements, which generally restrict the consumers' access to sensory information (Lin, Cross, & Childers, 2015). Likewise, Spence (2020) states that though "bidirectional" associations between colors and odors have not yet "rigorously" evaluated by researchers, i.e., whether color affects odor perception or the reverse, marketing practitioners have already exploited such association in branding, labelling, and packaging. Enhancement of emotions levels experienced by subjects while viewing a picture related to a pleasant odor proved that olfactory imagery stimulated by odor-associated images may be more effective than text and words, which are less tangible and more abstract by nature (Lin et al., 2015). Thus, it is logical to infer that both colors and pictures could be reliable predictors of odors of perfume.

Methodhology

Sample and country selection

Considering the scarce contributions in the literature regarding perfume online shopping behavior, and based on the extant literature relevant to the main research question proposed for this article, a qualitative approach was adopted. In-depth interviews were conducted in three countries, with a total of 27 consumers who had prior experience in buying perfume online. Purposive sampling method was used to identify potential participants in Brazil, Iran, and Portugal across a range of demographics, e-commerce, and online perfume purchase experience (see Table 1 for details). The frequency of online perfume purchases was categorized as either 'frequent' or 'occasional,' based on their preference for online platforms when buying perfume. Participants were recruited with the assistance of researchers' personal contacts and social networks, that is to say friends and acquaintances were requested to assist with identifying individuals with experience in online purchase of buying perfume online.

The fact that the study was conducted in three different countries provides additional diversity to participants' profiles and offers opportunities to further understand consumer behavior regarding online purchase of perfume. The inclusion of samples from different countries and continents in studies provides valuable opportunities to analyse cultural differences and similarities (Gerodimos et al., 2022). Additionally, such studies offer further validation of findings by expanding the scope of investigation. Several factors led to consideration of these three countries. First, official figures presented by international organizations such as Organization for Economic Cooperation and Development (OECD, 2019) have demonstrated growing trends both in the Internet access and online purchase in the three countries though with different rates.

Table 1: Sample Characteristics.

Co-de	Age	Gender	Education level	Occupation	Online Shopping activity	Type of online stores	Buy perfume online	Bought unknown scent online
BR1	42	Female	Post-graduate	Teacher	Frequent	Both	Occasionally	Yes
BR2	48	Female	Post-graduate	Manager	Frequent	National	Frequently	Yes
BR3	27	Female	Undergraduate	Clerk	Frequent	International	Frequently	Once
BR4	47	Female	Graduate	Clerk	Occasional	International	Occasionally	No
BR5	34	Female	Post-graduate	Psychologist	Occasional	National	Frequently	Yes
BR6	33	Male	Graduate	Business Owner	Frequent	Both	Occasionally	Yes
BR7	47	Female	Undergraduate	Beautician	Frequent	Both	Occasionally	Yes
BR8	50	Female	Undergraduate	Hairdresser	Occasional	Both	Occasionally	No
BR9	49	Female	Post-graduate	Purchasing manager	Occasional	Both	Occasionally	No
IR1	30	Male	Post-graduate	Self-employed	Frequent	National	Frequently	Yes
IR2	22	Male	Graduate	Pilot	Occasional	Both	Frequently	Yes
IR3	29	Male	Post-graduate	Teacher	Occasional	National	Occasionally	No
IR4	28	Male	Undergraduate	Clerk	Frequent	Both	Frequently	No
IR5	24	Male	Graduate	Student	Frequent	National	Occasionally	Yes
IR6	28	Female	Post-graduate	Accountant	Occasional	National	Occasionally	No
IR7	28	Male	Post-graduate	Coach	Occasional	National	Frequently	Yes
IR8	35	Male	Graduate	Business Owner	Frequent	Both	Frequently	Once
IR9	24	Female	Graduate	Beautician	Occasional	National	Frequently	Yes
PT1	22	Female	Undergraduate	Student	Frequent	Mainly national	Frequently	No
PT2	24	Male	Graduate	Student	Frequent	Mainly international	Occasionally	No
PT3	26	Female	Post-graduate	Translator	Frequent	Both	Frequently	Yes
PT4	59	Female	Graduate	Unemployed	Occasional	Both	Occasionally	Once
PT5	24	Female	Undergraduate	Clerk	Frequent	International	Frequently	Yes
PT6	20	Female	Undergraduate	Student	Frequent	International	Frequently	No
PT7	48	Male	Undergraduate	Shopkeeper	Frequent	Both	Frequently	Yes
PT8	24	Female	Graduate	Clerk	Frequent	Both	Frequently	Yes
PT9	50	Male	Graduate	Business Owner	Frequent	Both	Frequently	No

Source: own elaboration

Second, according to Statista (2023), revenue of "prestige cosmetics and fragrances" market in 2022 was US$1,372.0 million for Brazil (ranked 9th globally), while the figures for Iran and Portugal were US$231.3 million (34th) and US$225.8 million (36th), respectively. Although per capita consumption should be further investigated, still, these noticeable discrepancies raises the question whether there exist any remarkable differences among interviewees' accounts from one of the major consumer of cosmetics and fragrances in the world, i.e., Brazil, and the other two nations? Third, by comparing two countries enjoying more social and personal "freedom", i.e., Brazil and Portugal, with a country which has been ruled by a "restrictive" governing system, i.e., Iran, the present study could probably shed light on whether personal and social restrictions could confine expression of emotions and sensorial association consumers might find between

senses of olfaction and vision. Fourth, the three countries are located in three distinct continents and we believe that geographical factors that affect consumer behavior, would enrich the analysis. Fifth, the three countries are experiencing quite different economic, political, and social situations. Indeed, while Portugal is experiencing a steady situation as a European Union member, Iran is experiencing international sanctions which have affected consumers due to their situational constraints and also have limited their access to imported goods. And lastly, by including two countries that share a common language and some cultural backgrounds, i.e. Brazil and Portugal, it is possible to further analyze differences and similarities in consumers' practices and views regarding perfume online shopping.

Interviews design and analysis approach

The interview outline comprised questions on e-commerce experiences, perfume online shopping experiences and preferences, views, experiences and opinions regarding written information and visual cues (colors and images) that online stores provide about perfume products. Ethical principles which are generally accepted for social science research were adopted. Such principles included making the participation anonymous, confidential, and voluntary. Participants gave consent before scheduling the participation. Interviews had an average length of forty-five minutes and twenty seconds, and were audio-recorded, transcribed and translated into English.

Content analysis was adopted for this study. The literature review provided the foundation for identifying basic categories (e.g. component listing, verbal cues, color cues, image cues, e-shopper behavior variables) which assisted the authors in determining the initial coding scheme. Codification was initially performed by two of the authors, and the list of identified codes was compared before a final coding phase. Finally, the codification done by each of the two authors was compared in order to identify discrepancies. The results are presented in the next section.

Results

Participants were invited to share their experiences in buying perfume online, particularly regarding the buying process in the case of unknown fragrance. Their narratives offer insights into how they deal with scent uncertainty. Three alternative strategies were identified: interpreting written and visual cues on scent, ignoring all unknown perfume, and delaying the online purchase until trying the perfume in a brick-and-mortar store.

The use of perfume components listing by perfume e-shoppers

Participants in this study recognised that most online stores they buy perfume from, provide at least some details regarding scent components. Still, several participants affirmed that some online stores only present 'the name [of the perfume], the brand, a photo of the bottle, and the price', as explained by Interviewee BR4. Indeed, some interviewees were not interested in such details for different reasons. As explained by Interviewee BR3, she disregarded this kind of information even if it was provided by the online seller, as she was only interested in buying perfume she had tried before: 'I will find where it is cheaper and then, I will buy it'. In fact, amongst the participants who refused to buy unknown scents online these descriptions were often skipped, as mentioned by Interviewee IR6:

> *"I generally do not read such descriptions. The situation is worse in the case of unknown perfumes. I will never buy a perfume without knowing its scent. I don't even look at the price of perfumes I do not know." (Interviewee IR6)*

Another reason for disregarding component listing was being unable to make sense of it, confirming the extant literature that stresses the difficulty to understand scent properties (Schifferstein & Howell, 2015) and the perceived risks of buying perfume online (Kacen et al., 2013; Claudia, 2012). Interviewee PT3 mentioned that she does not read the list of components because she does not 'know how to relate them'. In fact, many participants recognised that anticipating the scent of a perfume from the list of its aromatic components and notes is difficult or even impossible. It was the case of Interviewee PT9 who stressed that he is not a 'professional expert' in the perfume sector, and thus 'ingredients description is meaningless' to him.

Amongst the participants that particularly valued this kind of information was Interviewee IR7 who mentioned that 'top, middle and base notes, have helped me a lot to recognise the scent. And also the components'. Actually, only a few participants considered themselves to be able to anticipate the scent of an unknown perfume by reading its list of components. Interviewees IR5 and IR7 both asserted that they can 'guess the scent [of a perfume] from its aromatic components' and because of that they are comfortable with buying perfume that they have never tried before.

Interviewee IR2 suggested that this type of information is useful only for people familiar with both scents and buying online. Interviewee BR5 corroborated this view, as she stated that she has bought unknown perfume several times, at least once she ended up not liking what she bought, but 'nowadays I'll only buy the ones with notes I know that are lighter, I don't risk anymore buying strong [perfumes]'. Interviewee PT4 further explained that even being able to anticipate the aroma of each component, it is impossible to guess the scent of the perfume as it has several fragrances combined in various degrees:

> *"For example, patchouli or amber notes never tell me what the perfume really smells like. I need to know all the other notes that this perfume has, I need to know (...) the percentages of each note and the combinations between the various notes... I think it's very complicated… for me it's really complicated!" (Interviewee PT4)*

Hence, most participants stressed the inescapable degree of uncertainty in interpreting the list of aromas present in a perfume, concluding that the efficacy of the attribute description will depend on the profile of the shopper. Take, for instance, the argument provided by Interviewee PT1:

> *"In fact the information of each perfume is usually well explained. I think this also depends on the buyer, how much she wants to risk. A person who reads citrus, lemon... I think the person can already understand what type of perfume that is. (…) Not that I would buy [only based on the component description] but it helps quite a lot." (Interviewee PT1)*

Indeed, other interviewees who were unable to make sense of the list of components said that they compare the main olfactory components with a known perfume (e.g. Interviewees BR1, BR2, BR5), and thus often buy perfume described as similar to their favorite ones. Interviewee PT8 put it further by suggesting that online stores 'could mention that the a given perfume has the same scent as another known perfume and associate it with that familiar perfume', noting that 'still this can be misleading because people will be

counting on one thing, and therefore, the description of a perfume can be never easily understood' (Interviewee PT8).

At best, other participants who were reluctant to buy a perfume before smelling it highlighted that these descriptions persuade them to go to brick-and-mortar stores to try new perfume before buying. This was the case of Interviewee BR3 who referred that 'if [an unknown] perfume attracts my attention, I'll just go to a store and smell it to know if I like it'.

These findings are consistent with the extant literature (e.g. Chiang & Dholakia, 2003; Peterson et al., 1997) emphasizing the difficulty in selling experience goods online. Although authors such as Ballantine (2005) and Cook and Coupey (1998) suggest the importance of providing detailed information, our results clarify that it will depend both on e-shoppers' ability to interpret perfume descriptions and their propensity to accept some degree of risk associated with buying without previously testing the product. Another factor that emerged from participants' experiences is the easiness of trying out perfume offline before purchasing it online. Particularly Brazilian and Portuguese interviewees stressed that they do not need to take the risk of buying an unknown scent, as they can easily go to a brick-and-mortar store and try it. These results partly support indications by Peterson et al. (1997) who have questioned the suitability of online stores for experience goods.

Another aspect that stands out in the participants' narratives is that many of them had only a general idea of the characteristics of the perfume they preferred. Participants often mentioned their preference for perfume classified as fresh, sweet, strong or intense, and spring/summer fragrances. Apparently, these simplifications were popular among study's both frequent and occasional perfume e-shoppers. In fact, most of participants did not feel they needed to know these kind of details. Interviewee PT9 illustrated it by stating that 'If you tell me the description of the perfume, I will usually buy without saying the name, I do not think I would even be able to recognise it'. Seemingly, participants that had more experience in buying unknown perfume online were the ones who included more detailed descriptions of perfume components in their narratives.

Other verbal cues for describing the scent

In addition to the description of perfume components and notes, perfume communication in online stores frequently includes another dimension of scents' verbal cues comprising symbolic meanings, emotional representations, and description of the sensations of wearing it (e.g. vibrant, sensual, Mediterranean, energetic, and pleasurable). Participants in this study generally considered that this type of description complements the list of aromatic components and provides additional information about the scent of a perfume. Still, for the interviewees who were unable to interpret scent components and to anticipate its combinations and reaction on the skin, these subjective descriptions were also ignored. Apparently, these verbal cues are unable to improve scent understanding of less skilled perfume e-shoppers.

However, some interviewees were more sensitive to these kinds of descriptions than the details on notes and aromatic components, as it was the case of Interviewee IR3, who started by expressing indifference to fragrance description, but later was inclined to try a perfume because he was 'really curious to see what Mediterranean odor is'. According to the participants in this study, one common outcome of these verbal cues is curiosity arousal, which rarely triggers immediate purchase, but more often incites them to try the perfume in a physical store. This phenomenon was particularly noticeable among those who had never bought unknown perfume online.

Moreover, receptivity for this type of description could also depend on price and brand trust. In fact, some participants admitted that this type of verbal cues could induce them to buy an unknown perfume online as long as it is a familiar brand (e.g. Interviewees BR1; PT2) or the price is lower than usual, as it was noted by Interviewee BR4: 'if it is a cheaper perfume maybe I would risk it'. Interviewee PT6 also mentioned being 'tempted to risk [the purchase of an unknown perfume]' as a result of attractive verbal cues. Interestingly, these were two participants who had never bought an unknown scent online, despite the fact that one of them (Interviewee PT6) frequently bought perfume online.

Thus, this study demonstrates the difficulty in effectively communicating scent properties verbally, as suggested by Engen (1982). Apparently, both verbal descriptions and verbal cues on scent provided by online stores are particularly suitable for savvy consumers who are more able to comprehend these kinds of information. Verbal cues seem more impactful than ingredient descriptions when consumers are less willing to buy an unknown scent, namely by triggering curiosity and increasing their willingness to try the perfume.

Scent cues provided by colors and images

As detailed in previous sections, the extant literature provides a robust body of contributions regarding the associations between colors and scents (e.g. De Valk *et al.*, 2017). Without surprise, most participants immediately could associate their favorite perfume with a color.

Some of these associations were induced by the perfume name (e.g. perfumes that include blue, white, or black in their names) and colors present in the bottle design, but participants also conveyed symbolic colors to perfume, as it was the case of Interviewee IR3 who exclaimed 'White! In fact the color of my perfume is yellow but I believe it should be white!'. Indeed, while talking about their favorite perfumes, interviewees frequently proposed a color that, in their opinion, represented their favorite perfume. Take, for instance, Interviewee IR5 who mentioned the clear associations between the perfume he usually wore and visual representations:

> *"It reminds me of the color brown. And the image I associate with this perfume, is a wooden room in which there is a leather armchair. I have always considered such images for all my perfumes." (Interviewee IR5)*

Participants suggested several colors for different types of scents, as detailed in Table 2. Blue and green colors were amongst the most mentioned by the interviewees, mostly associated with cool scents, while red and dark colors were associated with warm scents. Red seems to be one of the most challenging colors, as it was associated with warm, bitter, sweet and sporty scents by different participants. These are in line with Lin et al. (2018) findings regarding the ability of visual cues to trigger sensations related to other sensory perceptions. This is particularly evident in the association of cool tones (i.e. blue and green) with cool scents. Moreover, associations between type of scent and the expected color of its components were also common in participants' narratives, namely the color brown for woody scents and the colors of green, orange, and yellow for citrus scents.

Table 2: Scent-Color Associations Suggested by the Interviewees.

Cool	**Warm**
Blue (BR1, BR5, BR7, IR3, IR4, IR8, PT2, PT6) Green (BR4, BR5, BR7, IR3, IR6, IR8, IR9, PT2, PT4, PT6) Light blue (IR6) White (IR1, IR3) Yellow (PT4)	Black (BR1) Brown (BR8, PT4, PT9) Dark red (PT1) Dark blue (BR3, BR6, IR4) Orange (BR4, PT4) Red (BR1, BR4, BR5, IR3, IR6, PT4, PT6) Yellow (BR1, IR8, PT4, PT6)
Bitter	**Sweet**
Dark brown (BR2, IR5, IR7, PT8) Green (IR9) Pink (IR9) Red (BR6, IR2, PT8) Black (BR2, BR6, IR1, IR2, PT8)	Brown (PT4) Light pink (BR3, IR7, IR9) Light red (IR7) Orange (IR6, PT4, PT6) Pink (BR3, IR9) Red (BR5, IR6, PT4) Yellow (IR6, IR7, PT6)
Citrus	**Floral**
Green (BR4, BR8, PT4) Orange (BR7) Yellow (BR7, PT4)	Light blue (BR5) Light green (BR5) Light pink (BR3, BR5) Pastel tones (BR1)
Sporty	**Woody**
Red (IR3, IR4)	Black (BR3) Brown (BR3, BR5, IR7, PT1) Dark brown (BR1) Orange (BR5)

Source: Own elaboration

These results provide additional empirical evidence for correspondences between colors and odors based on the visual and odorous characteristics of familiar things such as fruits that are pointed out in the literature (Schifferstein & Howell, 2015; Goubet *et al.*, 2018).

Indeed, participants confidently associated colors with scents' characteristics which was raised by Interviewee IR8, who said:

> *"Usually, the colors green and blue remind me of cool scents. Yellow color, whisky color, give me sense of a warm fragrance. This always happens to me. Whenever I see colors, I would expect a particular type of scent. Red is the color of sweet scents. Most of my perfumes have blue and green colors." (Interviewee IR8)*

Apparently some colors (e.g. blue) seem to provide a clearer indication of the type of the scent than others, which were associated with different scents. One example is orange, which provided remarks of woody, floral, citrus, sweet, and warm scents for different participants in this study. Therefore, the efficacy of a typical color to convey 'one' type of scent may be limited. Another example is yellow, which seemingly provided contradictory indications for Interviewee PT4. She associated this color with both cool and warm scents. Overall, our findings suggest that colors can provide signals for e-shoppers while they need to be complemented by other information in order to effectively transfer the intended scents.

Table 3: Scent-Image Associations Suggested by the Interviewees.

Cool	**Warm**
Garden with colorful flowers (PT1) Ice cubes in water (IR8) Mountains (IR8, PT2) Nature (BR1, PT1, PT2, PT6) River (IR4) Sea (BR8, IR6, PT2, PT6) Spring (IR9, PT1) Summer (PT6, IR2) Water (IR2, IR3, PT2)	Autumn (IR9) Coffee farm (IR3) Desert (PT6) Palm trees (IR8) Party (BR6) Sunset (IR8)
Citrus	**Floral**
Orange blossom (PT8) Citrus fruits (BR7, IR8, PT8)	Blooms (IR5) Flowers (BR1, BR2, BR5, IR5, PT8) Roses (BR1)
Sporty	**Woody**
Cycling in forest (IR3) Formula-1 cars (IR3) Picture of stadium (IR5) Sport event (IR3)	Desert (BR5) Forest (BR3, IR1, IR7) Papyrus (IR1) Trees (IR1, IR7)

Source: Own elaboration

Further, many participants mentioned that the colors presented on the websites can provide cues on the scent, namely if it is strong, warm, or fresh, which is particularly relevant to decoding an unknown perfume. Interviewee IR2 attested that 'both colors and images can tell me if the scent is suitable for me', which was an opinion generally shared by other interviewees too, as they usually preferred a specific type of scent (e.g. sweet and fresh). Consequently, the dominant color presented on a perfume webpage may attract e-shoppers' attention which is more remarkable in the case of perfume they did not know. This opinion was confirmed by several interviewees.

Despite the acknowledgement of the importance of color in indicating the type of scent in the literature and accounts of some participants in the current study, Interviewee PT1 pointed out that:

> *"At least for me, colors alone don't tell me the scent of the perfume. But regarding images, for instance nature, all together, yes, it helps to imagine the scent that I think the perfume has. It might end up not being what I think it is but it leads me to say that it will smell like that color." (Interviewee PT1)*

And in fact, several participants included associations between images and scents in their narratives that contributed to a clearer interpretation of the type of scent. Table 3 provides a summary of the spontaneous associations between images and scents that emerged from the participants' narratives. As stressed by Lin et al. (2015), images are less tangible and more abstract than text and words. Arguably, this is also the case of colors. Still, as shown in this study, both images and colors can be effective in portraying the type of scent.

Combining verbal and visual cues

In line with De Valk *et al*. (2017) who explain that the connection between color and odor is facilitated by language, this study shows that scent could be more effectively represented by combining colors and images

with verbal cues. Despite giving varying degrees of importance to visual cues that online stores provide about the scent of a perfume, many participants believed that colors and images are of second importance to complement the fragrance description. Take, for instance, the explanation raised by Interviewee BR2:

> *"Images are good but they do not immediately bring the aroma to mind... nor the colors... what comes first is the fragrance description. I read the description of the product and then I can visualize and see other things." (Interviewee BR2)*

Interviewee IR8 confirmed that 'compared to verbal descriptions, I believe colors and images are less helpful' and other participants including Interviewee BR4 highlighted that visual cues are 'helpful but not determinant' in their online buying decision process. Interviewee PT2 summed up by stating that:

> *"They are all connected, so, yes, [verbal and visual representation of scent] are related to one another. I think that their relationship is what represents the perfume. For instant its freshness." (Interviewee PT2)*

These findings are consistent with Schifferstein and Howell (2015) who express that color cues are indirect. Still, this study does not corroborate Scharf and Volkmer's (2000) suggestion that colors and visual cues can substitute olfaction nor Lin et al. (2015) who propose that scent-associated images are more effective than words. In fact, several participants in this study emphasized the importance of scent descriptions in words, although acknowledging that visual cues attract attention, arise curiosity, and trigger intention to look for the perfume in a physical store in order to try it.

Cross-cultural and demographic comparisons

By looking deeply at Tables 2 and 3, more fascinating facts between the participants are revealed. First and perhaps the most remarkable one is the participants' ability to mention more color-scent associations (93 accounts) than their narratives of image-scent connections (48 accounts). In fact, their mentions of color-scent by far outnumbered their accounts of image-scent. This could possibly stem from the complexity of imagining pictures in one's mind than relating simple colors to fragrances. Second, Brazilians (36 accounts) were more able to associate colors with types of scents than the Iranian and Portuguese participants, i.e. 32 and 25 accounts respectively. Third, apparently Brazilians were also more expressive than Iranians and Portuguese in making connections between colors and citrus, floral, and woody scents. Probably the environment they generally live in, i.e. jungles, forests, flowers, and nature, has assisted them to make such connections more easily than other participants in the interviews. Fourth, according to the Table 3, at 24 accounts, Iranians were more capable of imagining pictures that were related to specific scents. The number of accounts for the Brazilians and Portuguese were 10 and 14 in that order. Fifth, by adding both color-scent and image-scent associations, it is noticeable that Iranians had the biggest number of accounts, i.e. 56, while Brazilians and Portuguese were less expressive at 46 and 39 respectively. Sixth, considering all the interviewees' gender, interestingly 66 color- scent associations were expressed by female participants while the number for their male counterparts was merely 27. Such significant difference was not observed for image-scent associations (Females: 22 vs. Males: 26). These figures simply state that while females were able to state color-scent relations more significantly than males, male participants were just a "little" better at making image- scent valence. Hence, it is wise to conclude that female participants in the current study were better color 'spotters' while males were better at visualizing images associated with fragrances.

And finally, our findings show that older participants, while considering all the participants as one group, made less associations between scents and images although they were still able to make more color-scent connections. The most refulgent example could be Interviewee PT4, aged 59, who despite making 11 color-scent associations, made no comments regarding possible image-scent associations.

Discussion and conclusion

Perfume is arguably one of the complex experience goods that requires improved online sales strategies in order to attract more e-shoppers. Such strategies could include information that could assist e-shoppers to evaluate products, including their olfactory characteristics. The literature on e-commerce emphasizes the importance of providing detailed product information, but it is particularly challenging to digitally communicate scent properties (Engen, 1982). Building on contributions in the literature suggesting that visual cues such as colors (Scharf & Volkmer, 2000; Schifferstein & Howell, 2015; De Valk et al., 2017) and images may facilitate scent identification (Lin et al., 2015) and complement textual descriptions of scent (De Valk et al., 2017; Lin et al., 2015), this article further explored the potential of verbal descriptions, colors and images to represent scent and hence to facilitate e-shopping behavior regarding unknown perfumes.

In line with suggestions in the literature (Kacen et al., 2013; Claudia, 2012; Schifferstein & Howell, 2015), this article found that two main reasons lead consumers to overlook scent descriptions. Firstly, consumers are often unable to conceive the scent based on perfume component listing and secondly, they may be determined in purchasing only perfumes that they have tried on before. They characterized their favorite perfume in very general categories (e.g. cool, warm, sweet), and apparently were not familiar with the perfume components. This was particularly evident among the participants that had less experience in purchasing unknown perfume online.

Interestingly, this article demonstrates that other more abstract and symbolic representations of scent, specifically verbal descriptions of emotions and sensations associated with using the perfume, images, and colors could be important complements to the listing of perfume components, as they provide additional understanding regarding the type of scent. Indeed, some participants were recognised to be attracted by symbolic descriptions of perfume, while many could make associations between types of scents and colors and images. Since these complementary sources of information about the scent of perfume seem more attractive to savvy consumers, their ability to portray scent, at least in some degree, deserves the attention of both scholars and practitioners. Overall, this study concludes that scent could be more effectively represented by combining both verbal and visual cues. As a result, it is argued that consistent combinations of perfume components descriptions, symbolic and sensory verbal descriptions, colors, and images have the potential to assist to disclose the scent of an unknown perfume. This happens more particularly regarding general scents' categories (e.g. warm, cool), which were, in fact, the ones most generally known by the participants in this study, and the ones they often used to describe the perfumes that they liked the most.

This article found that, apparently, most challenges posed to online sales of perfume are similar in the three countries where the study was conducted. These challenges include the importance of information provided, the complementarity of verbal and visual cues, and the overall strategies for understanding and testing perfume scent. One noticeable difference was the fact that Portuguese participants demonstrated easier access to international online stores, perhaps due to the political context that applies to European Union member countries. Undoubtedly, the unwillingness to buy a new scent before trying it out, is inseparable

from the fact that it takes consumers scant effort to test the product, as it was the case of many Brazilian and Portuguese participants in this study.

Managerial implications

Following the insights presented in the previous sections, alternative approaches are viable for perfume sector practitioners in order to facilitate online perfume shopping. One that stands out is providing detailed information on scent characteristics by combining both verbal and visual cues. Although participants in this study stressed the importance of verbal descriptions, visual cues were shown not only to reinforce perfume components listing and other written descriptions of the scent comprehension, but also to draw attention of e-shoppers and to signal generic classifications of scents (e.g. sweet, floral) that consumers immediately identify suitable or not for their own preferences. In particular, the list of associations between types of scents and colors and images found in the current study may provide some insights both to explore effective ways to convey scents in visual content and to assess possible incongruities in perfume communication.

Clearly, even frequent perfume e-shoppers may be unable to interpret perfume components' descriptions. In spite of frequent purchase of perfume, some participants in this study recognised that they could not name the components of the perfume they wear, or deduce what the perfume smells like based on a list of ingredients. Developing comparison applications similar to the ones used for comparing electronic devices (e.g. computers, digital cameras, and mobile phones) before making the purchase decision, could also be valuable for consumers, particularly if such applications enable the comparison of perfume components and notes between known and unknown perfume and using them as benchmarks.

Buying perfume before trying it, was associated with some degree of risk by most participants in this study. In fact, omni-channel consumer experience was a recurrent theme across interviews, emphasizing the preference for shopping online amongst our sample, but often complemented by visits to physical stores to test the products prior to buying. This phenomenon reflects the concept of 'switch shopper' (Zhai, Cao, Mokhtarian, & Zhen, 2017) who starts the consumption journey online, chooses physical stores for the trial phase, and goes back to the online environment to complete the transaction. Therefore, challenges are also particularly evident in brick-and-mortar stores, that might end up offering valuable services to e-shoppers by enabling perfume trial, but incapable of retaining them. Considering the fact that consumers increasingly use multiple channels for shopping (Ewerhard, Sisovsky, & Johansson, 2019), it is of paramount importance to recognise the most effective sales channels in presence of several retailers involved in purchase decision making which was frequently mentioned by the participants in this study.

Limitations and suggestions for future research

This study provides interesting insights for academics and practitioners interested in online shopping behavior regarding experience goods, and particularly perfume, although limitations need to be pointed out. The sample of 27 does not intend to represent e-shoppers as a whole, despite the authors' effort to select participants across a variety of profiles in terms of demographics and shopping experience. It is recommended that future research further validates these findings with different populations.

Other avenues for future research include comparing online purchase decision making processes of perfume and other experience goods, measuring the effectiveness of verbal and visual cues in selling newly launched perfumes for which consumers have no prior information on the type of the scent, and analyzing the impact

of scents' verbal and visual cues on perceived risks of purchasing an unknown perfume. This may allow both e-tailors and managers to create more focused, consumer-centric strategies on the Internet and to design more effective marketing campaigns.

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