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The effect of text-only versus text-and-image wine labels on liking, taste and purchase intentions. The mediating role of affective fluency.

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The effect of text-only versus text-and-image wine labels on liking, taste and purchase intentions: The mediating role of affective fluency.

## **Abstract**

This research investigates the effect of wine labels that contain text-only versus text-and-image on liking, taste and purchase intentions of the product. Further, the research addresses the underlying processes by investigating the role of affective fluency. Study 1 shows that wine labels combining text with matching images outperform text-only labels and labels where images and text do not match; this effect is mediated by affective fluency (while simultaneously controlling for cognitive fluency), which enhances liking, purchase intentions and taste expectation. Field Study 2 provides process evidence by directly manipulating the mediator in a real-life tasting situation. This field study demonstrates that affectively fluent labels enhance actual taste perception and purchase intentions. Managerial implications are discussed.

**Keywords:** wine labels, processing fluency, sensory marketing

## 1. Introduction

Both marketing practitioners and academics agree that wine label design is a key factor that influences consumer decisions at the critical decision-making moment. For instance, a wine industry study conducted by wine.net, found that 82% of the 2,000 consumers mainly relied on the label to select their favourite wine. Academic studies also confirm that the label is the key factor consumers rely on when evaluating and purchasing wine brands (Favier et al., 2019; Laeng et al., 2016; Mueller et al., 2010; Thomas and Pickering, 2003). Further, a stream of research (Corsi et al., 2012; Lockshin et al., 2006; Mueller et al., 2010; Mueller et al., 2010) has used Discrete Choice Experiment (DCE) method to understand consumers evaluation process of wine attributes, including labels information and other factors (e.g. awards, price) in their bottle choice. Yet, while companies are relying on labels to make them stand out from the competition, it is still unclear what makes an effective label.

One of the current trends in the wine market is that in addition to more traditional text-only designs of wine labels, many companies have introduced wine label designs with artistic and abstract visual images in addition to the text. Nielsen (2015) conducted an audit across 34 representative wine label designs tested using a panel of 2,700 US wine consumers, and 28 out of 34 (around 82%) labels were text-plus-image labels (Nielsen, 2015, p. 4). One of the key findings from the report further indicates that adding a whimsical and unique image on the label enhances attention and positive reactions from wine buyers (Nielsen, 2015, p. 9). This finding is consistent with wine managers' beliefs, that the use of words and images aids visual processing and help in the success of a wine (Firstenfeld, 2013). Often the text and the image are intentionally disconnected to make the labels appear quirky. Correspondingly, following a semiotic-based approach, Celhay et al. (2017) demonstrated that an unexpected graphic design of a wine label (elements of nature), yet relevant to the product category on an

abstract level (wine is a natural product) helps innovative brands to succeed (see concept of ‘ideal incongruence’, Pantin-Sohier and Lancelot-Miltgen, 2012).

Academic research highlights that processing fluency of a design is a key factor that contributes to its performance. Specifically, research has examined when and why unique visuals enhance consumers’ responses (Landwehr et al., 2013; Nenkov and Scott, 2014). On the one hand, increasing fluency of those visuals (i.e., making it easier for consumers to process a label) was shown to have a positive effect on the evaluation of those labels. Labroo et al. (2008), for example, found that exposure to a frog on a wine label after participants were primed with the word ‘frog’, increased preferences for those labels. However, this stream of research suggests that unusual visuals on a label are less cognitively fluent, yet there is scattered evidence that consumers may enjoy processing some unusual or complex visuals. Nenkov and Scott (2014) showed that consumers enjoy thinking about how to use “whimsically cute products” because they are fun. Although consumers spend more cognitive effort, the process feels affectively fluent.

Academic and managerial literatures are consistent in suggesting that wine labels involving unusual elements are an effective strategy, as long as those labels are fluent. However, it is unclear what factors can make those labels more fluent. Specifically, it is unclear how the interplay between pictorial and/or textual information that are displayed on a label, influences processing, taste perception and purchase intentions. On the one hand, text-only labels may be more fluent to process, but on the other hand, an image added to the text can make this processing more enjoyable and stimulate elaboration. For example, scattered findings in the literature indicate that under certain conditions, the presence of an image on the label may enhance consumers’ evaluation (McGarry Wolf and Thomas, 2007), and purchase intentions (Boudreaux and Palmer, 2007).

The goal of this paper is to investigate the effect of wine label types (i.e., text-only versus text-and-images including both matching and mismatching images) on consumers' wine evaluations. Across two stimuli replicates per condition (to ensure generalisability of the findings), Study 1 investigates the effects of label type (text-only vs. text-plus-congruent-image vs. text-plus-incongruent-image) on label liking, taste expectations, and purchase intentions. Further, Study 1 addresses the underlying process by measuring two mediators of cognitive and affective fluency and demonstrates that affective (rather than cognitive) fluency drives the effect of wine label on the outcomes. In Study 2 (a field experiment), we further validate the role of affective fluency as the underlying process, by directly manipulating the mediator (Pieters 2017). Specifically, we follow a recommended approach of an experimental manipulation to test and demonstrate a causal effect of the mediator (Pirlott and MacKinnon 2016), by directly manipulating affective fluency and investigating its effect on actual taste perception and purchase intentions with real consumers in a wine tasting setting.

This research makes three significant contributions. First, we contribute to the literature on wine labels (Labroo et al., 2008; Machiels and Orth, 2017; Orth and Malkewitz, 2008) by investigating how the interaction within the elements on the label (such as the pictorial and text) influences their effectiveness. Second, we contribute to the stream of literature on processing fluency in visual design (Labroo et al., 2008; Landwehr et al., 2011; Landwehr et al., 2013) by investigating the role of the underlying mechanism of affective processing fluency in addition to the cognitive fluency in product evaluations (Reber et al., 2004; Winkielman et al., 2003). Third, this research contributes to the literature on sensory marketing (Elder and Krishna, 2010; Hoegg and Alba, 2007; Krishna, 2012; Lick et al., 2016) by demonstrating how affectively fluent labels alter taste perception. The findings have actionable implications for managers.

## **2. Theoretical framework: Processing fluency**

### *2.1. Cognitive and affective fluency*

Processing fluency is a metacognitive experience (see Alter and Oppenheimer, 2009 and Graf et al., 2018 for a review; Schwarz, 2004). In general, fluency can be defined as “the subjective experience of ease or difficulty associated with mental processing” (Greifeneder and Unkelbach, 2013, p. 3). Processing information from a given stimulus involves both cognitive effort and affect stimulation that may occur at the same time (Winkielman et al., 2003).

*Cognitive Fluency.* Conceptual fluency requires extra-cognition resulting from elaboration to decipher the meaning of a given stimulus and making sense out of it (Alter and Oppenheimer, 2009; Lee and Labroo, 2004; Wu et al., 2016). This process may involve cognitive effort to understand the association of two (textual and pictorial) pieces of information presented together or sequentially (Alter and Oppenheimer, 2009; Labroo et al., 2008; Lee and Labroo, 2004).

*Affective Fluency.* Importantly, previous literature reveals that stimulus processing also generates affect (Reber et al., 2004; Winkielman and Cacioppo, 2001; Winkielman et al., 2003). In other words, processing can be pleasurable and thus, has an affective component in addition the cognitive one. Hence, based on processing fluency literature (Graf and Landwehr, 2015, 2017; Landwehr, 2016; Reber et al., 2004; Reber et al., 1998; Schwarz, 2004; Greifeneder and Unkelbach, 2013), and the ‘hedonic fluency model’ developed by Winkielman et al. (2003) that emphasises the association between fluency and affect, we define affective fluency as the enjoyment of using mental/cognitive resources to process a label design. People may perceive this mental experience (or “experience of thinking”,

Unkelbach and Greifeneder, 2013) as fun, by stimulating the generation of positive thoughts and associations. We elaborate on these below.

## 2.2. *Cognitive and affective processing of text-only and text-and-image labels.*

While both cognitive and affective fluency influence processing, they are likely to work in parallel (Graf and Landwehr, 2017; Landwehr, 2016). Specifically, the stream of literature on processing fluency suggests that stimuli can be processed either *more affectively* or *more cognitively* (Graf and Landwehr, 2017; Landwehr, 2016). This stream of literature is also consistent with multiple dual processing models in the literature, both well established (e.g., ELM (Petty and Cacioppo, 1986), as well as more recent ones such as System 1 vs. System 2 model (Kahneman, 2003)). To date, most of the literature on processing fluency has largely focused on cognitive fluency and demonstrated that fluent adverts, visuals or package designs increase liking and purchase intentions (Cian et al., 2014; Labroo and Lee, 2006; Labroo et al., 2008; Maier and Dost, 2018) and actual sales (Landwehr et al., 2011). Yet, as consumers can process information either more affectively or more cognitively depending on its nature and their motivation to process it (Klein and Melnyk, 2016; Shiv & Fedorikhin, 1999), cognitive and affective fluency may work differently.

From a cognitive fluency viewpoint, on the one hand, simple information (i.e. fewer details) is easier to process (Pieters et al., 2010). With respect to labels, this implies that text-only (versus text-and-image) labels are likely to be the most cognitively fluent and easiest to process, because fewer elements are competing for attention. On the other hand, images aid accompanying text by facilitating information comprehension and cognitive fluency (Levie and Lentz, 1982; McCracken and Macklin, 1998; Scott, 1994). For example, McCracken and Macklin (1998) found that visual elements enhance processing and memory if they are linked to pre-existing associations. This implies that text-and-image labels, where the two have a strong degree of association, may even outperform text-only labels with respect to cognitive



fluency. At the same time, if the text and the image are unassociated (either via previous exposures or semantically), those labels can hamper cognitive processing and fluency, because people may struggle to comprehend the information discrepancy (McCracken and Macklin, 1998). That is because people can associate words with a multitude of different meanings and generate corresponding expectations (Celhay and Remaud, 2018; Favier et al., 2019). For example, a label with minimal graphic design and text evokes modernity and simplicity (Celhay et al., 2017).

While the processing of complex and disfluent stimuli is clearly more cognitively effortful, it is not necessarily unpleasant. From an affective fluency viewpoint, complex information may be more affectively fluent, if one can enjoy processing it. For example, original ads and labels that stimulate imagination and affective processing enhance attention and interest (Labroo and Pocheptsova, 2016; Pieters et al., 2002). Further, because images stir emotions more easily than text-only information (Levie and Lentz, 1982; Scott, 1994), text-and-image labels are *ceteris paribus* affectively more fluent than text-only labels, even when the text and the image are not associated. Additionally, processing of hedonic information or hedonic products enhances affective fluency, because people perceive this process to be fun and enjoyable (Holbrook and Hirschman, 1982; Favier et al., 2019; Klein and Melnyk, 2016; Okada, 2005). Therefore, a label that contains both text and image is likely to be the most affectively fluent due to the presence of an image, and unlike cognitive fluency, the degree of fit between text and image is less essential for affective fluency. Further, vision, as the dominant sense, strongly influences other senses (Posner et al., 1976), especially taste (Hoegg and Alba, 2007; Krishna, 2012). Therefore, assuming that most people who buy wine are likely to be wine drinkers themselves, affective visuals are likely to enhance taste perception.

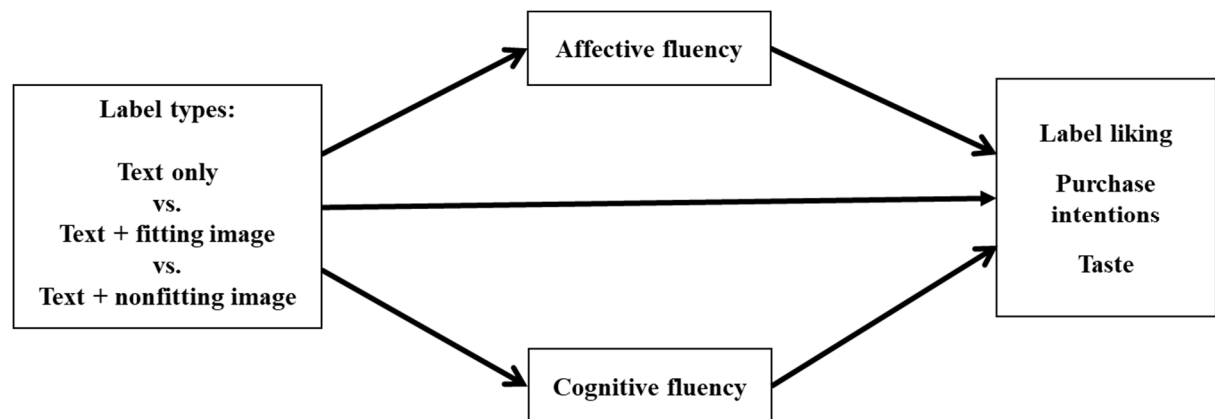
Overall, text-only labels are likely to be the most *cognitively* fluent, because there are fewer elements to process (compared to text-and-image labels). We expect the text-and-

image labels with a low degree of fit between text and image to be the least cognitively fluent. However, text-only labels are likely to be the least *affectively* fluent and may be perceived as boring or unappealing due to their simplicity (Favier et al., 2019). We expect text-and-image labels to be more affectively fluent than text-only labels, even if the degree of association between the text and the image is low.

Finally, we expect that labels with a high degree of fit between image and text will facilitate both cognitive and affective processing, because fitting images are an effective way of communicating information (Scott and Vargas, 2007) and enhance emotional responses (Favier et al., 2019). Overall, we expect the cognitive and affective fluency to mediate the effect of label types on several outcomes of processing (i.e., label liking, taste, and purchase intentions).

The conceptual model of this paper is depicted below.

**Fig. 1: Conceptual model**



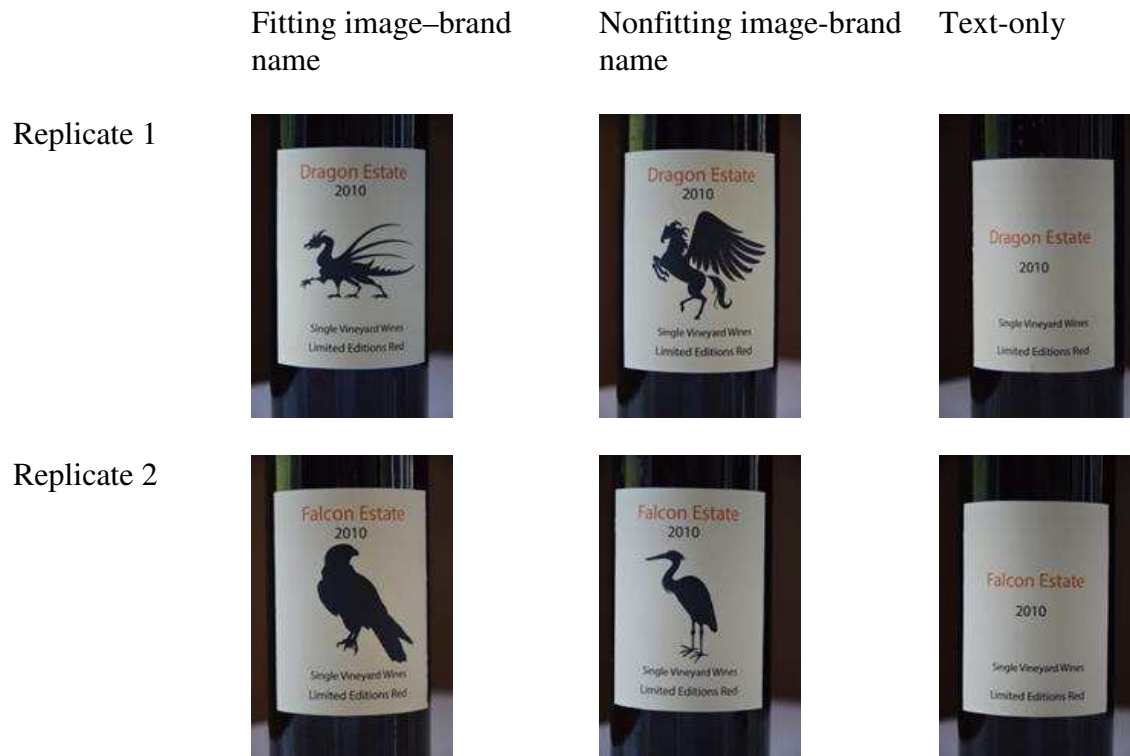
### 3. Study 1: Online experiment

#### 3.1. Method

The goal of Study 1 was to test the effects of types of wine labels (text-only versus text-and-image with varying degree of fit) on consumers' evaluations and shed light on the underlying (cognitive and affective) processes.

*Design and Stimuli.* Study 1 had a 3 (type of labels: text-only vs. text-with-fitting-image vs. text-with-nonfitting-image)  $\times$  2 (stimulus replicates: critter label 1 and critter label 2) between-subjects design as explained below. The types of labels were manipulated by showing a label that contained either text-only or text-and-image. The later differed in the following way: in the fitting conditions the label displayed either an image of a dragon with “Dragon Estate” text (i.e., replicate 1) or image of a falcon with “Falcon Estate” text (i.e., replicate 2) to create the congruence. In the nonfitting conditions, the text and image were mismatched to create the incongruence, i.e., pegasus image was displayed along with “Dragon Estate” text (replicate 1) or heron image with “Falcon Estate” text (replicate 2). For the text-only conditions, either “Dragon Estate” (replicate 1) or “Falcon Estate” (replicate 2) text was displayed. We included two stimuli replicates (i.e. two different critter labels) to address external validity and generalisability of the findings (Lynch Jr. et al., 2012). The wine labels are fictitious (see Fig. 2) and were created using Adobe Illustrator CC 2014 and Adobe Photoshop CC 2014. To make the labels look more realistic, a year (2010) and the description "Single Vineyard Wines, Limited Editions Red" were displayed on all six labels. Not to raise suspicion among the participants in the text-only conditions, the position of the brand name and vintage had to be slightly adjusted to look realistic (otherwise there would be an unexplained gap). Importantly, the left-right position of the brand and vintage display was the same across all stimuli (so it was NOT moved left or right off the centre relative to the other stimuli and remained in the upper middle, see Deng and Kahn, 2009). Hence, we can rule out that the effects were driven by the slight adjustment to the position.

**Figure 2: Study 1 stimuli**



*Procedure and Sample.* Participants over 18 years old were recruited using the Qualtrics Online Survey tool in New Zealand. Data were collected using a snowball sampling via Facebook and emails. Participants were randomly assigned to one of the six conditions. We excluded participants who provided incomplete responses. The final sample consisted of 237 respondents (68.8% female;  $Mod_{age\_group} = 35-44$ ,  $Min_{age\_group} = 18-24$ ,  $Max_{age\_group} = 65$  and +;  $Mod_{education} = \text{Bachelor's degree}$ ,  $Mod_{ethnicity} = \text{Caucasian}$ ). A majority of participants were interested and liked wine (71.7% and 86% respectively). Furthermore, participants usually paid on average NZD 18.66 for a bottle of wine. All dependent variables and mediators were measured on seven-point scales, as explained below.

*Dependent variables.* While looking at the label, participants were first asked to indicate their *label liking*: “How much do you like this wine label?” (1 = dislike very much – 7 = like very much; adapted from Lee and Labroo (2004)). Next, participants indicated their *purchase intentions*: “How likely are you to buy a bottle of wine with this label?” (1 = very unlikely to buy – 7 = very likely to buy; adapted from Landwehr et al. (2012)). Next, participants rated the *expected taste* of the wine: “What would you expect the overall taste of this wine to be?” (1 = very poor taste – 7 = very good taste, adapted from Elder and Krishna (2010)).

*Mediating variables.* Next, we measured *affective fluency* using three items ( $\alpha = .912$ ) by asking participants: “Looking at this wine label makes me think about good things”, “Looking at this wine label makes me think about good things in the past”, “Looking at this wine label makes me imagine myself experiencing good things” (1 = strongly disagree – 7 = strongly agree; adapted from Nenkov and Scott (2014)). Next, we measured *cognitive fluency*: “To what extent was this wine label easy or difficult to understand?” (1 = very difficult to understand – 7 = very easy to understand; adapted from Heckler and Childers (1992)). We also measured additional variables that are not further discussed in this paper.

### 3.2. Results

*Manipulation checks*<sup>1</sup>. We tested whether the labels differed in their perceived text-image fit. Participants indicated the extent to which the picture and the brand name conveyed the same meaning (1 = completely different meanings – 7 = the same meaning; adapted from Houston et al. (1987)). As expected, the results showed that participants rated the fitting conditions to be more meaningful ( $M_{fit} = 5.38$ ,  $SD = 1.55$ ) than the nonfitting conditions ( $M_{nonfit} = 2.52$ ,  $SD = 1.85$ ;  $t(151) = -10.39$ ,  $p < .001$ ).

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<sup>1</sup> We only considered the four conditions in which the brand name and the picture (fitting vs. nonfitting conditions) appear for this analysis and excluded the text-only conditions.

*MANOVA results.* To rule out any potential confounds due to the difference between the replicates, we first conducted a 3 (label types: text-only vs. text-with-fitting-image vs. text-with-nonfitting-image)  $\times$  2 (replicates: real vs. unreal animal) MANOVA with *label liking*, *purchase intentions* and *expected taste* as the dependent variables. While the results showed a significant effect of label types ( $ps < .041$ ), neither the main effect of replicates nor the interaction between label types and replicates was significant ( $ps > .229$ ). Therefore, the replicates used for each condition do not differ.

We then conducted a series of one-way ANOVAs (label types: text-only vs. text-with-fitting-image vs. text-with-nonfitting-image) with *affective fluency*, *cognitive fluency*, *label liking*, *purchase intentions* and *expected taste* as the dependent variables respectively (see descriptives in Table 1).

*Affective fluency.* The results indicated that the effect of label types on affective fluency was approaching marginal significance ( $F(2, 234) = 2.14, p = .12; \eta^2 = .02$ ). As predicted, the first planned contrast revealed insignificant differences between text-and-image labels with fitting and nonfitting images ( $p = .196$ ) in terms of affective fluency. However, as expected, participants found that labels with text-fitting-image combination ( $M_{fit} = 3.31, SD = 1.37$ ) were affectively more fluent than text-only labels ( $M_{text-only} = 2.87, SD = 1.41; t(234) = 2.04, p = .042; \text{Cohen's } d = .32$ ). Interestingly, the results suggest that the use of labels with text-and-nonfitting-image does not backfire compared to labels with text-and-fitting-image or text-only.

*Cognitive fluency.* The results indicated a significant effect of label types ( $F(2, 234) = 7.52, p < .001; \eta^2 = .06$ ). As expected, participants found it easier to process labels with text-only ( $M_{text-only} = 4.73, SD = 1.58$ ) than labels with text-plus-nonfitting-image ( $M_{nonfit} = 4.01, SD = 1.81, t(144.16) = -2.61, p = .01; \text{Cohen's } d = .42$ ). Further, participants found labels with text-plus-fitting-image ( $M_{fit} = 5.03, SD = 1.57$ ) easier to process than labels with

text-plus-nonfitting-image ( $M_{nonfit} = 4.01$ ,  $SD = 1.81$ ;  $t(143.25) = 3.68$ ,  $p < .001$ ; Cohen's  $d = .60$ ). Finally, the third contrast did not show any significance between labels with a text-fitting-image combination and text-only labels ( $p = .226$ ). This suggests that there are two ways of making cognitive processing of labels less effortful – the labels should either be text-only (simple) or a text-and-image with a fitting image to enhance text processing.

*Label liking.* The results showed that the effect of label types was significant ( $F(2, 234) = 7.74$ ,  $p < .001$ ;  $\eta^2 = .062$ ). As expected, the first contrast revealed that participants liked, marginally more, wine labels with text-plus-fitting-image ( $M_{fit} = 3.89$ ,  $SD = 1.60$ ) than with text-plus-nonfitting-image ( $M_{nonfit} = 3.44$ ,  $SD = 1.30$ ;  $t(149.11) = 1.91$ ,  $p = .058$ ; Cohen's  $d = .31$ ). As expected, the second and third contrasts revealed that participants liked more labels that include both text and image such that text plus either nonfitting image ( $M_{nonfit} = 3.44$ ,  $SD = 1.30$ ;  $t(154.36) = 2.03$ ,  $p = .044$ ; Cohen's  $d = .32$ ) or fitting image ( $M_{fit} = 3.89$ ,  $SD = 1.60$ ;  $t(157.09) = 3.77$ ,  $p < .001$ ; Cohen's  $d = .59$ ) than text-only labels ( $M_{text-only} = 3.00$ ,  $SD = 1.41$ ). The results suggest that (1) text-plus-fitting-image labels are liked the most and (2) labels that combine both text and image are still liked more than text-only labels. This latter finding suggests that a text and image combination is processed more affectively.

*Purchase intentions.* The results revealed that the effect of label types was significant ( $F(2, 234) = 6.71$ ,  $p = .001$ ;  $\eta^2 = .054$ ). As expected, the first and third contrasts revealed that participants were more likely to buy wines with labels including text-plus-fitting-image ( $M_{fit} = 3.39$ ,  $SD = 1.73$ ) than text-plus-nonfitting-image ( $M_{nonfit} = 2.64$ ,  $SD = 1.53$ ;  $t(234) = 2.89$ ,  $p = .004$ ; Cohen's  $d = .46$ ) or text only ( $M_{text-only} = 2.55$ ,  $SD = 1.49$ ;  $t(234) = 3.38$ ,  $p < .001$ ; Cohen's  $d = .52$ ). The second contrast did not reveal any differences between labels with text-plus-nonfitting-image and text-only labels ( $p = .705$ ). The results suggest that wines that include labels with text-plus-fitting-image still perform the best. Interestingly, while labels with text-plus-nonfitting-image are liked more than text-only labels, they do not differ in their

purchase likelihood. That may be because people are less likely to buy wines with too simple labels (text-only) or an inconsistent meaning (text-plus-nonfitting-image) potentially caused by boredom and higher risk taken respectively.

*Expected taste.* The results revealed that the effect of label types was significant ( $F(2, 234) = 2.98, p = .053; \eta^2 = .025$ ). The first and second contrasts did not differ either for labels with text-plus-fitting- (vs. nonfitting-) image ( $p = .117$ ), or for labels with text-plus-nonfitting-image (vs. text-only) labels ( $p = .452$ ). As intended, the third contrast revealed that participants expected wines with labels including text-plus-fitting-image ( $M_{fit} = 4.11, SD = 1.47$ ) to taste better than with text-only labels ( $M_{text-only} = 3.58, SD = 1.48; t(234) = 2.40, p = .017$ ; Cohen's  $d = .36$ ). Consistent with the previous results, this suggests that wines with text-plus-fitting-image labels taste the best, but still they do not differ to those with text-nonfitting-image due to the presence of an image in both situations.

**Table 1: Means of the variables of interest for Study 1**

	Text-only	Text-plus-nonfitting-image	Text-plus-fitting-image
Affective fluency	2.87 (1.41)	3.02 (1.42)	3.31 <sup>c</sup> (1.37)
Cognitive fluency	4.73 (1.58)	4.01 <sup>b</sup> (1.81)	5.03 <sup>a</sup> (1.57)
Label liking	3.00 (1.41)	3.44 <sup>b</sup> (1.30)	3.89 <sup>c</sup> (1.60)
Purchase intentions	2.55 (1.49)	2.64 (1.53)	3.39 <sup>ac</sup> (1.73)
Expected taste	3.58 (1.48)	3.75 (1.26)	4.11 <sup>c</sup> (1.47)

*Means are presented with standard deviations in parentheses.*

<sup>a</sup> *Fitting conditions are significantly different compared to nonfitting conditions at the 5% level (2-sided)*

<sup>b</sup> *Nonfitting conditions are significantly different compared to text-only conditions at the 5% level (2-sided)*

<sup>c</sup> *Fitting conditions are significantly different compared to text-only conditions at the 5% level (2-sided)*

Based on Table 1, we observed the biggest drop in cognitive fluency for labels with the text-plus-nonfitting-image, while those labels are relatively high on affective fluency; in contrast, we observed the lowest affective fluency for text-only labels, while those are relatively high on cognitive fluency.



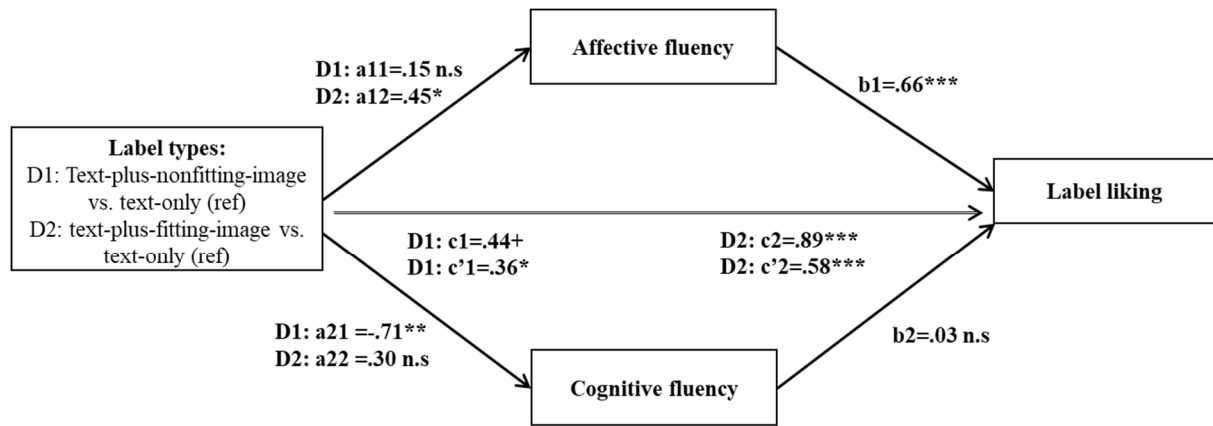
*Testing for parallel mediations.* To investigate the underlying mechanism responsible for the effect of label types on the dependent variables, we applied Hayes (2018) PROCESS version 3 that allows for a multicategorical independent variable. Specifically, we tested three parallel mediation models (see Fig. 3-5) using a 95% percentile bootstrap procedure (Hayes, 2018; Model 4, N = 5,000 resamples) with label types as the multicategorical independent variable, affective fluency and cognitive fluency as the parallel mediating variables, and label liking, purchase intentions and expected taste as the respective dependent variables. Because label types are a three-level independent variable, PROCESS created two dummy variables: text-plus-nonfitting-image vs. text-only ( $D_1$ ) and text-plus-fitting-image vs. text-only ( $D_2$ ) conditions (Hayes, 2018) – the text-only condition served as the reference group<sup>2</sup>.

*Label liking.* The results indicated that the relative indirect effects of labels with text-plus-nonfitting-image (vs. text-only;  $D_1$ ) on label liking through affective fluency and cognitive fluency were both insignificant because the confidence intervals (CIs) contained zero. By contrast, and as expected, the relative indirect effect of labels with text-plus-fitting-image (vs. text -only;  $D_2$ ) on label liking through affective fluency was positive and significant ( $a_{12} \times b_1 = .30$ ;  $SE = .15$ ) with the 95% CI excluding 0 (.015; .590,  $ab_{ps} = .199$ ), and the relative indirect effect on label liking through cognitive fluency was insignificant.

**Fig. 3: Parallel mediation model of label types on label liking for Study 1**

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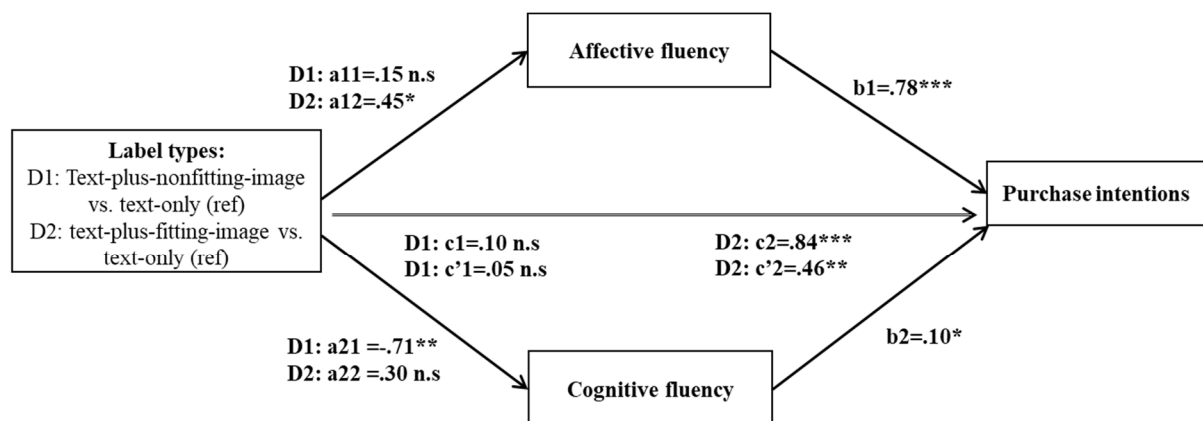
<sup>2</sup> We also estimated alternative competing models (i.e. serial mediation model 6 with label types → affective fluency → cognitive fluency → dependent variable; and label types → cognitive fluency → affective fluency → dependent variable). Overall, the results suggest that M1 and M2 do not have a causal relationship but rather are correlated. Therefore, following Lemmer and Gollwitzer (2017) and Pieters (2017), we refrain from presenting sequential mediation analysis in the paper and instead opt for the parallel mediation. The details of the alternative models are available from the first author on request.



n.s  $p > .1$  +  $p < .1$  \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$   
Notes: Numbers indicate unstandardised b coefficients; ref: reference group; N=237

*Purchase intentions.* The results indicated that the relative indirect effect of labels with text-plus-nonfitting-image (vs. text-only; D<sub>1</sub>) on purchase intentions through cognitive fluency was significant and negative ( $a_{12} \times b_2 = -.08$ ; SE = .05; CI: -.181; -.005,  $ab_{ps} = -.046$ ), but the indirect effect on purchase intentions through affective fluency was insignificant (CIs containing zero). As expected, the relative indirect effect of labels with text-plus-fitting-image (vs. text-only; D<sub>2</sub>) on purchase intentions through affective fluency was positive and significant ( $a_{12} \times b_1 = 0.35$ ; SE = .17; CI: .015; .678,  $ab_{ps} = .213$ ), and the indirect effect on purchase intentions through cognitive fluency was insignificant (CIs containing zero).

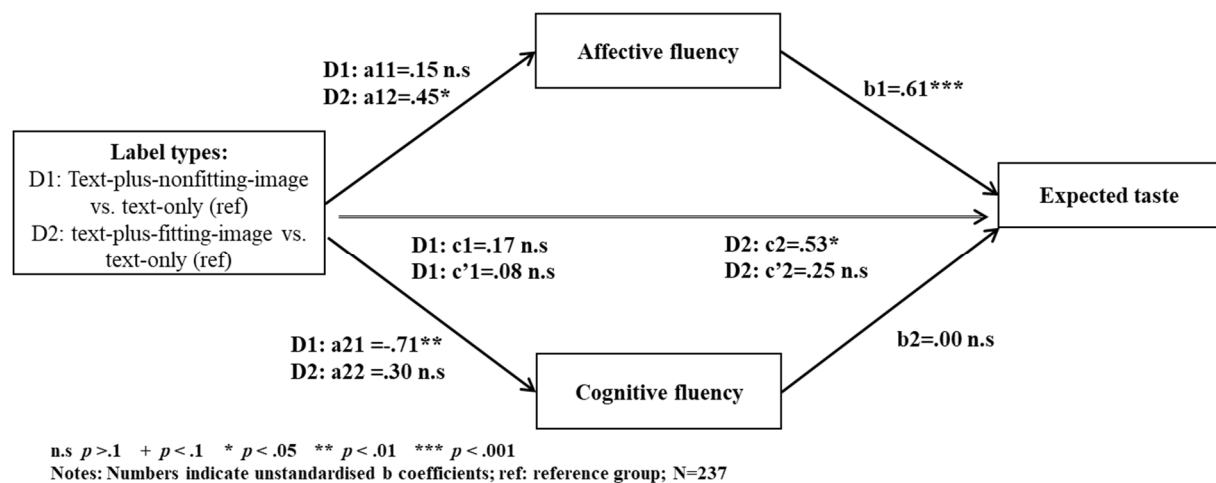
**Fig. 4: Parallel mediation model of label types on purchase intentions for Study 1**



n.s  $p > .1$  +  $p < .1$  \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$   
Notes: Numbers indicate unstandardised b coefficients; ref: reference group; N=237

*Expected taste.* The results indicated that the relative indirect effects of labels with text-plus-nonfitting-image (vs. text-only; D<sub>1</sub>) on expected taste through affective fluency and cognitive fluency were both insignificant (CIs containing zero). The results of D<sub>2</sub> were consistent with those from the two previous mediation analyses. Namely, the relative indirect effect of labels with text-plus-fitting image (vs. text-only; D<sub>2</sub>) on expected taste through affective fluency was positive and significant ( $a_{12} \times b_1 = .27$ ; SE = .13; CI: .013; .536,  $ab_{ps} = .192$ ), and the relative indirect effect on expected taste through cognitive fluency was insignificant (CIs containing zero).

**Fig. 5: Parallel mediation model of label types on expected taste for Study 1**



Altogether, these results consistently show that affective fluency mediates the relationship between label types and label liking, purchase intentions and expected taste respectively. Specifically, text-plus-fitting-image (vs. text-only) labels are more driven by affective fluency (than by cognitive fluency) which in turn increases label liking, purchase intentions and expected taste respectively.

### 3.3. Discussion

The results of Study 1 suggest that the type of label influences consumers' responses. Namely, the labels with text-plus-fitting-image increase label liking and purchase intentions compared to the labels with text-plus-nonfitting-image or text-only labels. Moreover, wine with labels that contain text-plus-fitting-image (vs. text-only labels) seem to enhance taste expectations. While the mediation analyses consistently suggest that the effects of label types on the consumer outcomes are caused by affective (rather than cognitive) fluency, it is important to validate the causality of the underlying mechanism of affective fluency.

Study 2 was designed to validate the role of affective fluency in driving the effect of label type on the dependent variables following process evidence by moderation approach (Pieters, 2017). Namely, we opted for an experimental manipulation demonstrating a causal effect of the mediator (Pirlott and MacKinnon, 2016). The idea of such an approach is to test a causal effect of the mediator by directly manipulating the mediator- e.g., by high versus low operationalisation of the mediator—and demonstrate a causal effect of the mediator on the dependent variable (see Pirlott and MacKinnon, 2016).

## 4. Study 2: Field experiment

We conducted Study 2 to validate affective fluency as the underlying mechanism driving the effect of label type in Study 1, and to test the causality in a real-life setting (hence, addressing external validity). Specifically, to provide process evidence (Pieters, 2017), we directly manipulated the mediator (Pirlott and MacKinnon, 2016), i.e., affective fluency (while keeping cognitive fluency constant as explained in the next section) and measure actual taste perception and purchase intentions in a real store with regular consumers. As Study 2 was designed as a field study, in order to comply with the store management, we were restricted in the number and types of questions we could ask (not to raise suspicion

among the regular shoppers). Therefore, we conducted an extensive pre-test of the labels used in Study 2, where (among other things), we measured affective fluency, as a manipulation check in the same way as in Study 1.

*Pre-test of the stimuli for Study 2.*

To manipulate affective fluency, we first pretested labels. We created labels that differed in levels of abstractness, which was shown to be related to fluency (Halberstadt and Winkielman, 2013). Namely, abstract stimuli are processed more affectively by being a positive experience (Reber et al., 2004). For example, Winkielman et al. (2006) showed that abstract (and prototypical) stimuli trigger affective reactions; and fun elements of the package design trigger mental representations of good things (Nenkov and Scott, 2014). This also suggests consumers freely construct their own mental images about the product (e.g. imagining where or how the wine was made and tastes like). As a result, consumers perceive the overall processing of abstract (or ambiguous) elements of a product as a seductive and personal experience (Hoch, 2002).

The elected labels manipulated affective fluency via more abstract (vs. concrete) levels by text ‘Mystery Estate’ (vs. ‘Mastery Estate’) as the brand name along with a corresponding image of a ‘unicorn’ (vs. ‘horse’). Importantly, we kept cognitive fluency constant by providing a consistent amount of information in text-plus-image labels across the conditions.

In the pretest, a sample of US participants ( $N = 82$ ; 52.4% female;  $M_{age} = 34.02$ , representing a similar “new wine country” with English being the same native language as in New Zealand) was recruited via Amazon MTurk, and saw a wine label either (1) high on affective fluency (i.e. Mystery Estate as the brand name and a unicorn as the picture) or (2) low on affective fluency (i.e. Mastery Estate as the brand name and a horse as the picture) and answered several questions.

As a manipulation check of the affective fluency, participants rated the three items *affective fluency* ( $\alpha = .898$ ) in the same way as in Study 1. *Cognitive fluency* was measured on a seven-point scale (“The process of studying the wine label felt...”; 1. Difficult –7. Easy; adapted from Landwehr et al. (2011)). To rule out a potential explanation that the stimuli triggered different quality perceptions, participants rated *expected quality* of the wine on a seven-point scale (“This wine appears to be of...”; 1. Very poor quality –7. Very good quality; adapted from Petroschius and Monroe (1987)).

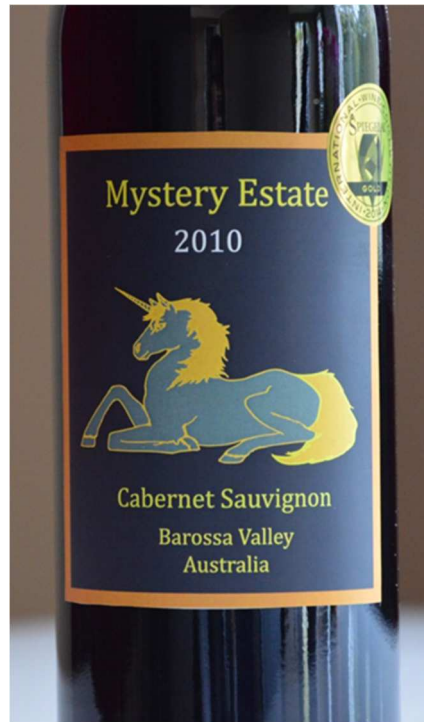
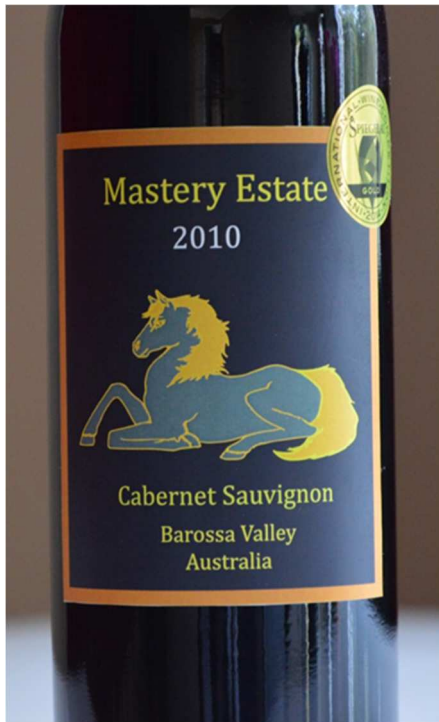
With respect to cognitive fluency, as intended, the results of an independent t-test revealed insignificant difference between concrete and abstract labels ( $M_{concrete} = 5.67$ ,  $SD = 1.49$ , versus  $M_{abstract} = 5.44$ ,  $SD = 1.27$ ,  $p = .441$ ). The results of another independent t-test confirmed an insignificant effect of label types (concrete versus abstract) on *expected quality* ( $p = .409$ ). Hence, we can rule out that the level of abstractness of the created labels influence cognitive fluency or quality.

We conducted an ANCOVA with *label types* as the independent variable, *affective fluency* as the dependent variable and *expected quality* as the covariate. The findings indicated that the main effects of label type ( $F(1,79) = 4.69$ ;  $p = .033$ ) and expected quality ( $F(1, 79) = 82.06$ ;  $p < .001$ ) were significant. Namely, contrasts confirmed that Mastery Estate was affectively less fluent than Mystery Estate ( $B = -.50$ ,  $t(79) = -2.17$ ;  $p = .033$ ). Thus, as intended, while the level of cognitive fluency was constant across the conditions, the labels varied on affective fluency. Therefore, in the field Study 2, we use the stimuli of Mystery Estate with unicorn image and Mastery Estate with horse image as the conditions for high and low affective fluency respectively. Due to the results of the pretest, we keep the quality constant by providing the same quality cue (gold medal) across the conditions.

#### 4.1. Method

Study 2 had a within-subjects design (affective fluency: low vs. high; using labels from the pretest). We used two bottles of the same Australian red wine from the same batch. To ensure it was the same, we mixed the wine up and poured it back into the two bottles across the two conditions but with different labels (see Fig. 6). We used a real sticker with a gold medal that is common in our field setting for the two conditions to keep the quality constant. A sample of 40 regular shoppers (18 years old or above;  $Mod_{age} = 45-54$ ; 35% female) of a wine retail store volunteered to participate in a free wine tasting (another two participants were excluded due to incomplete questionnaires and one participant due to an inappropriate tasting behaviour). The tasting was done in the wine section of a liquor store, and the participants were representative of the wine customers of the day. Participants were informed that an Australian wine producer was launching two new brands of Cabernet Sauvignon from Barossa Valley, Mastery Estate and Mystery Estate. Next, participants saw the two bottles, tasted the wine from each of the bottles and described the taste of the wine in a few words. The tasting order of the two wines was counterbalanced between participants to control for any effects of order. Then, participants rated the *taste* of the wine (1 = very poor taste –7 = very good taste; adapted from Elder and Krishna (2010)) and their *purchase intentions* (measured same as in Study 1). Finally, participants indicated on a seven-point scale the *perceived quality* of the wine (“What do you think about the overall quality of this wine?” with 1 = very poor –7 = very good; adapted from Elder and Krishna (2010)).

**Fig. 6: Study 2 stimuli**



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#### 4.2. Results

Two independent coders assessed whether the open-ended taste descriptions included any positive comments (0 = no; 1 = yes) across the conditions. The results of a non-parametric McNemar test indicate that the wine with the more affectively fluent label (Mystery Estate) was associated with positive taste marginally more often (34 times, 85%) than the wine with the less affectively fluent label (Mastery Estate) (26 times, 65%;  $p = .057$ ; note that participants tasted the same wine).

Next, we estimate three mixed-factorial ANOVAs with *affective fluency* as the within-subjects factor, *tasting order* as a between-subjects factor, *age groups* as a covariate (to control for any dispositional heterogeneity in consumers' abstraction affinity, which is consistent with companies' belief that Millennials like abstract labels more, which could potentially interfere with affective fluency), and respectively *taste*, *purchase intentions*, and *perceived quality* as the dependent variables.



*Taste.* Despite tasting exactly the same wine, participants indicated that the more affectively fluent Mystery Estate tasted marginally better than the less affectively fluent Mastery Estate ( $M_{highfluency} = 5.09$ ,  $SD = 1.01$  vs.  $M_{lowfluency} = 4.84$ ,  $SD = 1.28$ , ( $F(1, 37) = 3.90$ ,  $p = .056$ ;  $\eta^2 = .095$ ). All other effects were insignificant ( $ps > .106$ ). Consistent with Study 1 and the open-ended coded answers of Study 2, the results again suggest that labels higher on affective fluency enhance taste perceptions.

*Purchase intentions.* As expected, participants indicated a significantly higher willingness to buy wines with more affectively fluent labels ( $M_{highfluency} = 4.71$ ,  $SD = 1.55$  vs.  $M_{lowfluency} = 4.41$ ,  $SD = 1.64$ , ( $F(1, 37) = 11.39$ ,  $p = .002$ ;  $\eta^2 = .235$ ). The interaction between affective fluency and age was also significant ( $F(1, 37) = 8.45$ ,  $p = .006$ ;  $\eta^2 = .186$ ). Unsurprisingly, younger participants were more willing to buy wines with affectively fluent labels than older participants. This finding is consistent with one of the frequently cited reasons behind the introduction of unusual and abstract labels, that wine companies are bringing to accommodate Millennials that are entering the marketing (Nielsen, 2015). All other effects were insignificant ( $ps > .233$ ).

*Quality.* To further rule out an alternative explanation that product quality was established not only via the gold medal, but that affective fluency also influenced the perceived quality, we estimated an additional ANOVA with quality as the dependent variable. As expected, the results showed that neither the main effect of affective fluency on perceived quality nor any other effect was significant ( $ps > .167$ ), confirming that quality perception was only triggered by the external quality cue (i.e., the gold medal) and not by the manipulated affective fluency.

#### 4.3. Discussion

Overall, the findings of Study 2 are in line with the findings of Study 1 by demonstrating, in a real retail setting, that affectively fluent wine labels enhance actual taste

and purchase intentions. The results indicate that although consumers tasted the same product, they perceived wine from the bottle with a label higher on affective fluency to taste better than the wine from the bottle with a less affectively fluent label. This finding was robust across two different types of measures, an open-ended description and a rating scale.

## **5. General discussion**

Across an online experiment and a field experiment in a retail environment, our results demonstrate that the type of wine label design (labels combining text with images versus text-only labels) influences consumer product evaluations, taste perceptions, and purchase intentions. Importantly, our results demonstrate that affective fluency is the main underlying mechanism driving this effect. We uncover the role of affective fluency by first measuring both affective and cognitive fluency and conducting mediation analysis (in Study 1), as well as demonstrating *process evidence* by manipulating affective fluency and addressing its causal effect on actual taste perception and purchase intentions in a real-life setting (in field Study 2). Our findings have a number of important theoretical and practical contributions.

### *5.1. Theoretical contributions*

First, we contribute to the literature on wine labels (Labroo et al., 2008; Machiels and Orth, 2017; Orth and Malkewitz, 2008) by addressing an important moderator that determines when adding a matching image enhances consumers' responses to a wine label. Second, our research contributes to the literature on processing fluency in visual design (Labroo et al., 2008; Landwehr et al., 2011; Landwehr et al., 2013) by investigating the mediating role of affective fluency (in addition to cognitive fluency). Namely, affective fluency is the underlying process driving the effect of wine labels on product evaluation, purchase intentions and taste perception. Our results provide further evidence that suggests at least sometimes affective fluency can dominate cognitive fluency. In line with the literature on

processing fluency (Graf and Landwehr, 2015, 2017; Landwehr, 2016; Reber et al., 2004; Winkielman et al., 2003), this finding confirms the important role of affect in processing fluency, and in the “experience of thinking” (Unkelbach and Greifender, 2013). One of the key findings of this research is that the relatively new and largely unaccounted affective fluency is a stronger driver of wine taste perceptions and subsequent purchase intentions than the widely recognised cognitive fluency. In other words, people tend to rely more on affective reactions while processing wine labels, rather than cognition. This finding is in line with research from Mueller et al. (2010) that demonstrates that consumers often make affective-based choices. Third, this research contributes to the literature on sensory marketing (Elder and Krishna, 2010; Hoegg and Alba, 2007; Krishna, 2012; Lick et al., 2016) by showing how a visual (i.e., wine label), that displays the same factual information about the product can nevertheless influence actual taste perceptions by driving different affective reactions.

## *5.2. Managerial implications*

Our findings have clear implications for practitioners dealing with the design and implementation of product labels and labelling practice. First, to attract new customers, managers should consider employing labels that include both text and fitting image (in addition to text-only labels) because this meaningful combination enhances the comprehension of the information on the label and the subsequent product evaluations. At the same time, due to the high cognitive fluency, text-only wine labels could still be more effective in situations when consumers are not able to engage in affective processing (e.g., time pressure, repeat purchase, etc.). Second, consumers do not often process information cognitively when they shop in a retail environment (Sorensen, 2012). Therefore, managers should consider implementing labels with some degree of abstractness in them, to keep the design affectively fluent, as these labels may help increase taste and purchase intentions. Overall, it seems that elements that can enhance affective processing of labels have a

powerful effect on how consumers evaluate the taste of the product. Therefore, companies may think about ways of making their labels more affectively fluent; for example, by designing labels that contain pictorial storytelling, arty or historical-related illustrations, or for text-only labels, introduce different fonts and/or colours. Previous research also indicates that art could be a powerful trigger for affectively-based processing (Favier et al., 2019; Hagtvedt and Patrick, 2008).

### *5.3. Limitations and future research*

This paper has several limitations that leave potential avenues for future research. First, we focus on purchase intentions, which do not always predict and convert into actual purchasing behaviour (Chandon et al., 2005). Future research should investigate the effect of different types of wine labels on actual purchasing behaviour controlling for other factors. In particular, while we chose not to include price consistently across the experimental conditions so as not to bias the participants, price is an important driver for wine sales, especially under low-involvement (Lockshin et al., 2006). Hence, future research should account for the effect of price (together with the label design) to reduce the potential variability of the responses due to different price expectations. Further, other factors beside the label and marketing mix can affect shoppers' behaviour in a retail environment such as in-store atmospherics (Spence et al., 2014), point of purchase (Areni et al., 1999), salespeople or peer recommendations (Melnik, 2014; Melnik et al., 2009; Parsons and Thompson, 2009). These open interesting avenues for future research and call for other methodologies to investigate differential effects of those factors and labels and/or marketing mix (e.g. Discrete Choice Experiment, Lockshin et al., 2006; semiotic-based approach, Celhay et al., 2017, Celhay and Remaud, 2018; conjoint analyses, etc.)

Second, in our studies, participants were exposed to fictitious labels. This opens an interesting opportunity for future research to investigate the interplay between cognitive and

affective fluency for situations of multiple exposures and/or repeat purchases with a longitudinal approach. For example, it is possible that while cognitive fluency may increase ('mere exposure effect', Bornstein, 1989; Zajonc, 1968), the effect of affective fluency on product evaluation may decrease as the label becomes a cue for recognition overtime.

Third, consistent with Elliot and Barth (2012) who found that Millennials prefer wines with non-traditional labels, the results of Study 2 suggests that younger people are more likely to purchase wines with abstract labels. Future research could investigate the effect of multiple elements of label design (e.g. colour, typeface, images, and shape) on different generations' purchasing behaviour.

Forth, while this research has just started to uncover the visual effect of labels on taste perception, more research on sensory marketing is needed (Krishna, 2012), especially in the wine field (see Spence, 2019). For example, it would be interesting to know whether and to what extent new types of sensory labels (e.g., tactile or scented labels) affect taste expectations and sales, mostly when customers are unable to taste wines in-store. Our research would predict that those labels should be more affectively fluent and hence, increase taste perceptions. However, future research would need to validate that. In a similar vein, while this research focuses on static labels, it would be interesting to investigate the effect of interactive labels and augmented reality (AR) on consumers' experience and purchasing behaviour as it seems to be a growing trend. For example, the companies Treasury Wine Estates and The Last Wine Company have launched a series of brands – 19 crimes (see [www.19crimes.com](http://www.19crimes.com)) and the Walking Dead Wines (see [www.thewalkingdeadwine.com](http://www.thewalkingdeadwine.com)) respectively – that require the download of a mobile app (Living Wine Labels) to experience the fun and uniqueness of a 'living' wine label.

Finally, with respect to methodology, as to date, to the best of our knowledge, there is no official scale for measuring 'affective fluency', we relied on an adapted multi-item scale from

Nenkov and Scott (2014) due to its proximity to our theorisation. Yet, in line with Graf et al. (2018) who have developed a one-item measure for subjective processing fluency, we hope future research would further validate our measure, or develop and test alternative scales to measure ‘affective fluency’.

We view the current research as a first step in a long journey and hope it will sparkle further interest in addressing the effects of wine labels on consumer behaviour.

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