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# PERCEPTION OF WINE LABELS BY GENERATION Z: EYE-TRACKING EXPERIMENT

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## ABSTRACT

Product quality is the result of an involved technological process. For the customer, product quality is not easy to grasp and the decision to buy the product is more influenced by the customer's perception of quality than by quality itself. It is therefore the result of many factors making an impression on the customer, their personal taste and the mood of the moment. The role of marketing is to understand the factors that have a customer impact. We need to identify the factors the customer is aware of and is able to communicate. Yet there are also a number of factors at play that affect the customer without their being aware of it. The aim of the paper is to get to know customer behaviour not just through the factors the customer communicates (answering questions) but to seek new methods that allow an objective examination of the customer's stimulus response, in our research case, using eye-tracking technology. The research study was conducted by way of an experiment with concurrent questioning in June 2016. There were 44 respondents taking part in the experiment, aged from 19 to 25 (Generation Z). The experiment set out to identify the importance of various visual attributes of a bottle of white wine, using a total of 7 stimuli. The experiment was carried out using the method called A/B testing, whereby one half of the respondents (A) was shown the original version of the stimulus and the second half (B) the modified stimulus. The eye-tracking research was carried out using remote eye-tracker SMI RED 250 at a sampling frequency of 125 Hz. In answering questions, the respondents evaluated the importance of the factors of price, type, awards, the shape and colour of the bottle and information on the label, i.e. information about the producer (maker) of the wine, wine variety, wine-growing region, country of origin, year of vintage and the sugar content indication. The paper concludes with a summary of the respective importance of the individual visual attributes that Generation Z consumers are most influenced by, when purchasing bottled white wine.

**Keywords:** customer; factor; quality; wine; eye-tracking

## INTRODUCTION

Generation Z is the category name given to persons born after 1995 and up to about the year 2010, the onset of the global financial crisis. This generation grew up with the Internet and other modern methods of communication (mobile networks, digital television, etc.). As a result, this generation is characterized by a high degree of mobility, having values in common, shared ideas, virtualization and job preferences tending toward information technology, business, economics and the humanities **(Ilin and Shestova, 2014)**.

The popularity of wine in the Czech Republic is constantly increasing, to the detriment of beer consumption in particular. In 2014, according to the **Czech Statistical Office (2015)** the average annual consumption of wine was 19.5 litres per capita (including children). The wine trade offers consumers a wide range of products of different makes, varieties, regions, labels, wine styles and prices, affecting the purchasing decision process **(Dodd, et al., 2005; Johnson and Bruwer, 2004)**.

To reduce the risk consumers face when choosing wine, various individual attributes of the products are taken into account during decision-making. Some of these attributes, particularly taste and quality, cannot be assessed prior to consumption. Other attributes that also relate to product characteristics may be gleaned by the consumer from the labels – the wine type/variety, the commercial brand, year of vintage, region of origin, awards, production processes, etc. The attributes listed on the label may thus fundamentally determine product choice when buying **(Ling and Lockshin, 2003)**. When choosing a wine, both the bottle and its label thus play an important role. According to **Kotler and Armstrong (2012)** the role of packaging is not only to protect the product but serves as an important marketing tool, since 40 to 70% of purchase decisions are made directly in-store. Due to much competition and reduced visibility on retail shelves, the packaging must attract attention, describe the product and at the same time, sell it. **Wang and Chou (2011)** state that packaging consists of two elements: the first being the structure and shape of the packaging, the second, the external graphic design (colour, typography, decor). The basic function of a label is to identify the given product or brand. Another function is to provide information about the product content, when and where it was made, how it is to be used, etc. And finally, the label serves together with the bottle to promote the product, to support where it is placed in the store and how it connects with customers.

The information provided on a wine label is subject to European Parliament and Council Regulation (EU) No 1308/2013, as well as Commission Regulation (EC) No 607/2009, European Parliament and Council Regulation (EU) No 1169/2011 and other national legislation. Compulsory information to be shown on the label must be in a language easily understood by consumers in the Member States where the foodstuff is put on the market. In the case of wine intended for Czech consumers, the compulsory particulars laid down by the legislation of the Union are to be shown in the Czech language. The compulsory particulars laid down by EU legislation that are deemed a priority for the Czech Agriculture and Food Inspection Authority are the product type, the stated provenance, the name of the bottler or manufacturer/dealer, and for imported wines the name of the importer, and any applicable allergen notice. The last two items may be listed outside of the field of view of the other compulsory particulars. The other compulsory particulars are, for wines with a protected designation of origin (PDO) or protected geographical indication (PGI), the expression PDO/PGI ("CHOP/CHZO" in Czech) and the PDO/PGI name, the actual alcoholic strength by volume in percent, an indication of the sugar content (only sparkling wines, aerated sparkling, sparkling or quality aromatic sparkling), lot number (may be outside the field of view of the other compulsory particulars), the nominal volume and the special rules for certain wines **(Czech Agriculture and Food Inspection Authority, 2015)**. **Scollary (2016)** states that additional information on the label may be added at the manufacturer's discretion to entice the customer to buy. The back label often gives the sensory properties of the wine, the winemaker's notes and recommended foods that go with the particular wine **(Mueller et al., 2010)**. According to the study entitled 'Message on a Bottle: Colours and Shapes in Wine Labels' **(Scollary, 2016)** consumers prefer specifically coloured and shaped printed labelling. The study concludes that an influencing purchase decision factor, apart from label design, price, availability and previous experience, is also the easy pronounceability of the variety name, should the customer be presenting the wine to their friends **(Scollary, 2016)**. The research findings of **Di Vita et al., (2014)** also confirm the conclusions of the studies about strong consumer ties to local products, whereby consumers tend to prefer products from their home region, especially when it comes to agri-food products.

Product quality is very difficult to pin down, and identifying wine quality no less so, determined as it is not only by the basic method of cultivation and processing, but by the consumer's personal tastes. Hence, marketing focuses on customer quality perceptions rather than on objective quality **(Charters and Pettigrew, 2007)**.

The aim of marketing is to get to know the consumer's decision-making process when choosing wines, to identify the factors that most influence the consumer, among the ones the consumer is aware of and is able and willing to identify e.g. in response to questions. Another large group includes those factors that affect the consumer's purchasing without the consumer being consciously aware of them. Therefore, the process of learning about consumer behaviour does not focus solely on the information gained through questioning, but methods that allow the objective evaluation of how marketing initiatives affect consumer response are constantly being sought. One of the techniques that enables monitoring unwitting human response is eye-tracking, following where the eyes point to. It is this eye-tracking technology that has been used in the experiment this paper is concerned with. The aim of the research was to identify by experiment, implemented with the help of eye-tracking technology and supplementary questioning, the significance of each of the visual attributes of bottled wines that have an impact on the 'Generation Z' consumer's wine choice.

## MATERIAL AND METHODOLOGY

The research was conducted by way of an experiment with concomitant questioning in June 2016. There were 48 respondents taking part in the experiment, aged from 19 to 25, selected based on their ready availability and their being a relevant representative sample of Generation Z. All the respondents indicated that they were wine buyers.

The findings here interpreted include data from 44 respondents, as in the case of four of the respondents there were significant deviations in the initial eye-tracker calibration or the results of these respondents exhibited high signal loss. Problems with calibration or high signal loss can have a variety of causes. Typically, they can be caused by the respondent having an eye defect or by their position relative to the eye-tracking device, by eye fatigue and the like **(Bojko, 2013)**.

With regard to the quantitative nature of the eye-tracking research, this should comply with the recommendations of **Pernice & Nielsen (2009)**, who considered it appropriate to work with a minimum of thirty respondents.

The experiment was carried out using the method called A/B testing, whereby one half of the respondents (A) was shown the original version of the stimulus and the second half (B) the modified stimulus. The eye-tracking investigation was carried out using remote eye-tracker SMI RED 250 at a sampling frequency of 125 Hz. The eye-tracker was affixed to the bottom edge of a monitor having a diagonal size of 22″ with a 16:10 aspect ratio. The respondents' viewing distance was about 60 cm. The first step in the experiment was to calibrate the eye-tracker to the respondent's sight, using a nine-point auto calibration with subsequent four-point verification. After calibration, the stimuli were presented, in a randomized order. The task of the respondents was to view each individual stimulus and then answer the questions concerning the stimulus shown. A total of seven stimuli were used, each displayed for 10 seconds.

The questioning had two parts. The first questioning was done immediately after the stimulus, whereby the respondents were asked whether they know the wine displayed and, where appropriate, whether they buy it. Furthermore, the respondents had to rate on a ten-point scale how much the packaging and labelling had caught their attention and how upmarket was the impression. The final questions for each stimulus was how much they would be willing to spend on the wine depicted, and whether they would indeed buy the given wine.

The second round of questions came after all the stimuli had been shown, the respondents being asked questions about their purchasing habits when buying white wine. Specifically, the questions concerned the frequency of

buying wine (options: once a week, more than 3 x a month, 2 – 3 x a month, once a month, less than once a month). They rated on a ten-point scale the importance of the factors of price, variety, awards, the shape and colour of the bottle and the label, when buying wine. They further evaluated the importance of the individual bits of information on the label, i.e. information about the producer (maker) of the wine, wine variety, wine-growing region, country of origin, year of vintage and the sugar content indication.

For processing the study results, all the data was submitted to the SMI BeGaze software, used to analyse the eye-tracking data in more detail. The first step carried out was to cleanse the data of respondents with high signal losses or marked signal calibration deviations. Subsequently, using the editor implemented in the BeGaze program, the so-called Areas of Interest (AOI) were created. The Area of Interest (AOI) was created over such parts of the image that were the subject of changes between the A/B testing. The monitored metric for each area of interest was in particular the time spent observing the AOI, referred to as Dwell Time, measured in milliseconds. For illustrating the findings, we also generated what are called 'heat maps' that display data by using the colour spectrum, whereby the greater the intensity of the observation of the image elements the more pronounced is the red colouration. For the analysis of the data obtained and the influence of individual stimuli, the statistical characteristics were supplemented with the paired t-test and the Mann-Whitney test. The data was analysed using IBM SPSS software.

## RESULTS AND DISCUSSION

As stimuli for the experiment we used photos of 7 bottles of selected white wines sold in the Czech Republic. Figure 1 shows the individual varieties, where column A shows the original stimulus, while column B shows the stimulus with modified attributes.

Under the eye-tracking investigation, the respective attributes on the wine labels were the Sweetness of the wine, Wine type, Producer, Country of origin, Wine area, Vintage – tracking over the AOI. All the attributes of interest were present only on the labels of stimulus #1 (version A and B), stimulus #2 (version A and B), and stimulus #7 (version A and B). For the other stimuli only some of the monitored attributes were shown on the front label. The individual Dwell Times of observation are given in Table 1. For illustrative purposes the Table also includes the rating of the wine, the Award sticker. The most noticed attribute can safely be considered to be the last-mentioned attribute, i.e. the Award sticker, which, if displayed on the stimulus, received the greatest degree of attention in almost all cases (AVG Dwell Time [ms] 2164.56). The second visual attribute in terms of receiving much attention was the information about the wine Producer (AVG 1425.51 [ms]). Significantly less attention was paid to the attributes of Sweetness of the wine (AVG 293.16 [ms]), Vintage (AVG 270.60 [ms]) and Country of origin (AVG 142.68 [ms]).

To verify the conclusiveness of the investigated influences on observation Dwell Times we used statistical


**Figure 1** Stimuli and its modifications used for A/B testing.

hypothesis testing. The results of the individual tests are summarized in Table 2.

Hypothesis #1 assumes that there isn't [sic] a relationship between the observation Dwell Time of the wine variety information and its location on the wine label. This hypothesis was not confirmed at the $\alpha = 0.05$ significance level and so we cannot reject the null hypothesis. From the average Dwell Time, it is evident that a non-significantly higher level of attention went to the manufacturer-used rendition of the Wine type (Mode A).

To verify the relationship between the presence of a secondary label and the price valuation of the wine we used hypothesis #2. The control group in this case worked using a wine bottle with a secondary label depicting a lizard (see 2A in Figure 1), which is associated with the wine name. For the experimental group, this was removed (see 2B in Figure 1). We also do not reject [sic] this hypothesis at the $\alpha = 0.05$ significance level. A non-significantly higher average price valuation was obtained here by the producer's rendition depicting the lizard.

**Table 1** Average Dwell Time of selected AOIs.

| Stimulus | Award sticker | Producer | Wine type | Wine area | Sweetness of wine | Vintage | Country of origin |
|---|---|---|---|---|---|---|---|
| 1A | **2184.51** | 1165.58 | 1405.65 | 754.91 | 334.00 | 291.32 | 201.51 |
| 1B | **2626.33** | 1429.75 | 967.82 | 693.76 | 399.80 | 327.71 | 97.85 |
| 2A | - | **1866.27** | 1036.64 | 299.77 | 267.69 | 297.79 | 30.26 |
| 2B | - | **2107.18** | 1162.26 | 518.21 | 200.21 | 246.27 | 49.01 |
| 3A | 1242.65 | **1622.41** | 1025.15 | - | - | - | - |
| 3B | **1725.00** | 1181.13 | 672.47 | - | - | - | - |
| 4A | - | **1902.44** | 1269.53 | - | - | - | - |
| 4B | **2060.76** | 1476.75 | 995.00 | - | - | - | - |
| 5A | **2357.51** | 689.53 | 2131.64 | - | 248.65 | 85.32 | - |
| 5B | **2955.39** | 818.18 | 1945.36 | - | - | - | - |
| 6A | - | 1697.21 | **2201.17** | - | 561.46 | - | - |
| 6B | - | 1485.56 | **1806.89** | - | 610.34 | - | - |
| 7A | - | **1322.52** | 1019.00 | 940.73 | 12.55 | 299.15 | 221.70 |
| 7B | - | 1193.24 | 1133.41 | **1241.90** | 4.03 | 347.31 | 255.95 |
| **Mean** | **2164.56** | **1425.51** | **1340.81** | **741.52** | **293.16** | **270.60** | **142.68** |

When it comes to Dwell Time, the influence of whether and where on the wine bottle there was an Award sticker was the subject of hypothesis #3. In this case, we accept the alternative hypothesis, and from the values of the averages it is clear that a greater degree of attention went to the design where the sticker was rendered near the top of the label (Mode B = 1912.47 [ms]). The greater attention given to the upper part of the label is also evident from the Heat Map in Figure 2. In the case of the control variant A, the respondents' attention was evidently elsewhere compared to variant B, latching onto other attributes than the Award sticker attribute when placed in the bottom part of the label.

The dependency between the label observation Dwell Time and the presence of the Award sticker was the subject of hypothesis #4. In view of the value of $p = 0.00$, we accept the alternative hypothesis, i.e. that there exists a relationship between the label observation Dwell Time and the presence of an Award sticker. From the values of the averages it is apparent that, with the sticker present, the average label observation Dwell Time was 1826.66 milliseconds less than in the variant rendition without the sticker.

The dependency between the designation of the wine with there being an Award sticker present and the price valuation was tested by hypothesis #5. The hypothesis was applied to the same stimulus (#4) and with regard to the value of p = 0.851 we cannot reject the null hypothesis. In this case, the price differences between the respective renditions are almost negligible, i.e. Mode A = 117.22 CZK, Mode B = 113.55 CZK.

The authors also sought to verify the importance of presenting information about the Vintage, the Wine type and classification, insomuch as replacing this information with a lower rated wine classification text (table wine) will have an effect on the price valuation of the relevant wine (hypothesis #6). In this case, the null hypothesis is rejected at the $\alpha = 0.05$ significance level and we adopt the alternative hypothesis, i.e. that there is a dependency between the generic designation of the wine and this wine's price valuation. The average pricing of the rendition with the original text was 159.05 CZK, while with the text replaced the wine pricing average was 123.82 CZK.


**Figure 1** A/B test of award sticker position - heat map.

When testing the impact of the stopper capsule colouring on the stopper observation Dwell Time, (hypothesis #7), in view of the value of p = 0.529 we do not reject the null hypothesis. The average observation time was lower for the experimental group, i.e. Mode B (Dwell Time) = 476.98 [ms] compared to Mode A (Dwell Time) =

569.91 [ms]. From Figure 3 it is clear that the attention of the respondents was for both variations of the stimuli directed at similar attributes of the labels, and alternate stopper coverings made a minimal impression.

To test for any dependency between the colour of the wine bottle and the price valuation influenced by the colour changes, the impact of this change on the valuation of the observed wine was assessed. As with the previous hypothesis, no effect was confirmed to exist and in view of the value of p = 0.897 the null hypothesis cannot be rejected.

During questioning the respondents were asked to rate each of the factors that affect them when buying wine, on a scale from 1 to 10 (1 = least important factor, 10 = most important). From Table 3 it is clear that the respondents ascribe the greatest influence to the information on the wine label and the wine variety. In contrast, the least importance was ascribed by the respondents to the factors of awards and the bottle shape of the wine purchased.

The respondents were subsequently asked about their perceived importance of each of the elements of the label and what importance they ascribe to each of the information items on the labels. From Table 4 it is clear that the highest rating was assigned to the information about the sugar content of the wine. In contrast, the least importance was, on average, ascribed by the respondents to the year of vintage.

Comparing the two preceding tables (Table 3 and 4) with Table 1, which lists the observation times of individual attributes, we find a certain paradox. Although the respondents claim wine awards to be one of the least important attributes, when that is shown on the bottle it gets distinctly the highest level of attention. The importance of the presence of the Award sticker was tested under hypothesis #4, which proved a dependence between the Dwell Time on other attributes and the presence of the Award sticker. Likewise, the attribute of sugar content, which the Generation Z respondents considered the most important, was by contrast among the attributes that received the least amount of attention under the eye-tracking investigation.


**Figure 2** A/B test of stopper capsule colouring - heat map.

**Table 2** Hypothesis results.

| Hypothesis | Mode | Test | Sig. value | Hypothesis accepted |
|---|---|---|---|---|
| #1 | Mode A (Dwell Time) = 1509.82<br>Mode B (Dwell Time) = 1060.37 | Independent-samples t-test | 0.056 | H0 |
| #2 | Mode A (price) = 129.86<br>Mode B (price) = 109.73 | Independent samples Mann-Whitney U test | 0.279 | H0 |
| #3 | Mode A (Dwell Time) = 1159.88<br>Mode B (Dwell Time) = 1912.47 | Independent-samples t-test | 0.030 | H1 |
| #4 | Mode A (Dwell Time) = 8999.18<br>Mode B (Dwell Time) = 7172.52 | Independent-samples t-test | 0.00 | H1 |
| #5 | Mode A (price) = 117.22<br>Mode B (price) = 113.55 | Independent samples Mann-Whitney U test | 0.851 | H0 |
| #6 | Mode A (price) = 159.05<br>Mode B (price) = 123.82 | Independent samples Mann-Whitney U test | 0.038 | H1 |
| #7 | Mode A (Dwell Time) = 569.91<br>Mode B (Dwell Time) = 476.98 | Independent-samples t-test | 0.529 | H0 |
| #8 | Mode A (price) = 142.14<br>Mode B (price) = 131.50 | Independent samples Mann-Whitney U test | 0.897 | H0 |

**Table 3** Importance of factors when buying wine.

| Variable | Mean | Median | Mode | Mode frequency |
|---|---|---|---|---|
| Label | 7.02 | 7 | 7 | 16 |
| Variety | 6.77 | 7 | 8 | 10 |
| Price | 6.09 | 6 | 7 | 12 |
| Awards | 5.84 | 6 | 7 | 11 |
| Bottle shape | 5.80 | 6 | 6 | 11 |

**Table 4** Information items on the label, and their importance when buying wine.

| Factor | Mean | Median | Mode | Mode freq |
|---|---|---|---|---|
| Sugar content | 8.43 | 9 | 9 | 16 |
| Variety | 7.20 | 8 | 8 | 10 |
| Producer | 6.95 | 8 | 8 | 17 |
| Country of origin | 6.80 | 8 | 8 | 12 |
| Area | 5.64 | 6 | 5 | 8 |
| Vintage | 5.14 | 5 | 5 | 9 |

**Table 5** Monitored attribute areas taken up.

| Stimulus | Producer (%) | Sugar content (%) | Award Sticker (%) |
|---|---|---|---|
| 1A/B | 7.01 | 2.14 | 18.95 |
| 2A/B | 10.54 | 1.32 | - |
| 3A/B | 3.19 | - | 5.91 |
| 4A | 8.76 | - | - |
| 4B | 8.76 | - | 8.84 |
| 5A | 4.94 | 1.07 | 8.24 |
| 5B | 4.94 | - | 8.24 |
| 6A/B | 4.04 | 2.71 | - |
| 7A/B | 5.35 | 0.54 | - |

**Table 6** Pricing of the respective stimuli.

| Stimulus | Modal price A (CZK) | Modal price B (CZK) |
|---|---|---|
| 1 | 128.18 | 106.77 |
| 2 | 129.86 | 109.73 |
| 3 | 133.73 | 112.45 |
| 4 | 117.23 | 113.55 |
| 5 | 159.05 | 123.82 |
| 6 | 119.59 | 114.59 |
| 7 | 142.14 | 131.50 |

For other attributes, the difference between their observation Dwell Time and their adjudged importance is none too great.

One of the possible causes of the low Dwell Times for the Sweetness of wine AOI, and conversely, the high Dwell Times on the Award sticker AOI may be the space taken up by these attributes on the label/wine bottle. Hence if we compare the areas of the respective information items on the labels, see Table 5, it is clear that the areas taken up by the individual attributes are quite different. For example, in the case of stimulus #7, the area of information about sugar takes up only 0.54% of the stimulus area. One of the factors influencing the observation Dwell Time of the reference attribute is undoubtedly to be considered the very size of the area taken up by this attribute on the label.

Another possible explanation for the low Dwell Times of the Sugar content reference attribute can also be the effect of the attribute's placing on the label. Most of the test labels had the Sugar content information placed in the bottom part of the label, in the case of two stimuli, it was not shown at all. This lends itself to making a clear recommendation for wine producers to optimize their labels for Generation Z consumers: if possible, always visibly show information about the wine sugar content.

If we look at the pricing of the respective stimuli that were part of the supplementary questioning and are shown in Table 6, we see that the highest rating was reached by stimulus #5 in variant A. This was also part of testing hypothesis #6, discussed above. What was the cause of this high rating compared to the other stimuli? In the first place we need to be aware what attributes were displayed for this stimulus. Here, specifically, they were the Producer, Wine type, Sweetness of wine, Vintage, Classification of the wine and furthermore the Award sticker. Comparing the displayed attributes with the attributes for the stimulus, shown under variant B, which left showing only the attributes of Producer, Wine type and the Award sticker and the remaining attributes replaced by the classification: table wine attribute, it can be postulated that the presence of the Award sticker may have had far less an influence, than the absence of the other attributes and their being replaced with a basic classification.

For comparison, we can mention stimulus #4, which was included in the experiment with the aim of testing the significance of the presence of the Award sticker attribute. In the case of this stimulus only the following attributes were present: Producer, Wine type in the control group, the experimental group was, moreover, presented with the Award sticker attribute. On the basis of hypothesis #5 the above assumption is confirmed, about the location of the Award sticker on the bottle without the presence of other appropriate attributes.

As regards the actual position of the Award sticker, for emphasis it is entirely appropriate to locate it at the top of the label, as is common practice with most producers. When placed in the lower part of the label the Award sticker receives less attention, see hypothesis #3.

The authors had set out to compare their results with other studies where eye-tracking technology was used to evaluate wine labels, yet no similar studies focused on performing A/B testing seem to have been published thus far. Eye-tracking technology used to assess boxed wine packaging is present in the write-up by **Moskowitz et. al., (2009)**. The issue of designing labels for the preferences of (Hong Kong) Chinese consumers was dealt with by the paper authored by **Tang et al., (2015)**.

## CONCLUSION

The respondents to our research study, which set out to identify the significance of each of the visual attributes of bottled wines that have an impact on Generation Z consumers' wine choices, stated the sugar content to be the most important attribute influencing their wine choice. Yet as shown by the results of our eye-tracking study, this attribute gets less attention compared to other attributes. In contrast, the highest degree of attention among the monitored attributes was obtained by the Award sticker, which, however, the respondents ranked lower down on their factor preference scale. It was found, furthermore, that the presence of the Award sticker attribute itself does not automatically translate to a higher price valuation of such a bottle by respondents and that other among the given attributes must be considered. The position of the sticker on the bottle has a significant effect on the intensity of the attention it gets. The present study has confirmed a greater degree of observation Dwell Time when the sticker is placed in the upper part of the label. Under the experiment we also tested the effect of changes to the colour of stopper capsule and also the colour of the glass bottle itself. Neither one of these attributes was found to have a significant effect on the observation Dwell Time in the case of changing the colour of the capsule, nor on the price valuation in the case of changing the bottle glass colour.

The present study has several limitations, and some follow-up studies would be advisable. With regard to the limited representativeness of the sample used, the first consideration would be to conduct the study with a broader sample of respondents, in order to get more generally applicable findings. Further studies could also work with a larger number of chosen product samples, or greater diversity as may be, whereas this study restricted itself primarily to commonly available bottles of white wine produced in the Czech Republic.

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