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Influence of the glassware on the perception of alcoholic drinks

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ABSTRACT

Two studies are reported in which the effect of glassware was investigated on subjective ratings of, and willingness-to-pay for, alcoholic drinks. Participants from China (Study 1) and the USA (Study 2) viewed online photographs of red wine, white wine, beer, whisky, and Chinese baijiu presented in 6 different glasses, including a narrow, wide, or stemless wine glass, a highball or rocks glass, and a beer mug. They rated liking, familiarity, and congruency (between the drink and the glassware), as well as how much they would be willing to pay for the drinks. Both the type of drink and the type of glassware influenced participants' subjective ratings of, and willingness-to-pay for, the drinks. The red and white wine were liked more, and people were willing to pay significantly more for if they thought that the glassware was congruent with the contents. These findings highlight the influence of content–context congruency on consumers' subjective ratings and willingness-to-pay.

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1. Introduction

Many studies have examined the influence of various contextual factors on consumers' perception (e.g., Diaz & Maria, 2013), memory (Kumar, 2000), evaluation (Wänke, Bless, & Schwarz, 1998), purchase intent (Steinhart, Kamins, Mazursky, & Noy, 2014), selection (Dhar, Nowlis, & Sherman, 2000), and preference (Noseworthy, Wang, & Islam, 2012). In the case of food and beverage consumption, it has been demonstrated that a variety of contextual factors influence the perception, cognition, and consumption behaviour of consumers (see Spence, Harrar, & Piqueras-Fiszman, 2012; Spence & Piqueras-Fiszman, 2014, for comprehensive reviews), as well as their willingness-to-pay for products (e.g., Wansink, Payne, & Painter, 2014). Over the last few years, there has been a growth of interest in studying how glassware, as one of the most significant contextual factors in the consumption of beverages, influences consumers' perception and behaviour (see Spence & Wan, 2015, for a review).

A number of studies have demonstrated that the shape of the glass influences how people sort glasses (Faye, Courcoux, Giboreau, & Qannari, 2013), how much they pour (Wansink & van Ittersum, 2003, 2005), how rapidly they consume a drink (Attwood, Scott-Samuel, Stothart, & Munafò, 2012), how they feel

about the entire meal experience (Billing, Öström, & Lagerbielke, 2008), and their choice, preference, and post-consumption satisfaction with the drink (Raghubir & Krishna, 1999). Importantly, the shape of the glass has also been shown to influence how people rate the smell and/or taste/flavour of wine (see Spence, 2011, for a review). For instance, many studies have demonstrated that if one can see and/or physically interact with a wine glass, the glass's size, shape, weight, and colour can all influence the rating of the taste and/or flavour of its contents (e.g., Fischer & Loewe-Stanienda, 1999; Hummel, Delwiche, Schmidt, & Hüttenbrink, 2003; Vilanova, Vidal, & Cortés, 2008). However, the influence of the glassware on the consumer's perception of the contents appears to be more psychological than necessarily chemical/physical in origin (Spence, 2011; Spence & Wan, 2015). When people focus their attention on the drinks without being aware of the glass in which the drink is presented, they typically report no perceptible difference between the same wine samples presented in different wine glasses (Cliff, 2001; Delwiche & Pelchat, 2002; Russell, Zivanovic, Morris, Penfield, & Weiss, 2005).

In many of the above-mentioned studies, the participants often had the opportunity to actually see, smell, and/or taste the drinks. By contrast, we have recently conducted a series of cross-cultural studies that were designed to investigate the influence of the glassware on consumers' expectations concerning the coloured drinks and their colour–flavour associations when they viewed photos of these drinks online (Wan, Woods, Seoul, Butcher, & Spence, 2015; Wan et al., 2014). In these studies, photos of red, green,

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yellow, blue, orange, and brown drinks were shown to participants from mainland China, the USA, the UK, South Korea, and India. These drinks were created in the psychology laboratory, and consisted of water mixed with food colouring. They were presented in different receptacles, such as those typically used for water, wine, or cocktail drinks. Interestingly, the results revealed that both the type of glassware and the cultural background of the participants influenced the flavour expectations that were set up by viewing a drink of a given colour.

However, it remains unclear whether the glassware would influence people's rating of drinks that had a more realistic or market-relevant colour, based only on the sight of these drinks as displayed in photos viewed online. Even though alcoholic drinks are sometimes purchased by the bottle (e.g., at supermarkets or some restaurants/bars), it is more typically the case that consumers will purchase drinks by the unit (e.g., at bars or restaurants) and consume them in different kinds of glasses. When alcoholic drinks are served in glasses where no label is available, the glassware will presumably come to play a much more important role in setting a consumer's expectations.

In two online studies, we investigated the influence of glassware (i.e., different glasses containing an alcoholic drink) on people's ratings of, and willingness-to-pay for, alcohol drinks. Three specific research questions were addressed: (1) how does the glassware influence people's liking of alcoholic drinks? (2) Does the glassware influence people's ratings of the congruency between the drink and the glass? (3) Does the glassware influence the consumer's willingness-to-pay for the drink? Considering the huge population and fast-growing wine market in China (Bretherton & Carswell, 2001; Insel, 2014; Jenster & Cheng, 2008), we thought it both interesting and important to test Chinese consumers in Study 1. In Study 2, we tested participants from the USA and compared the results to what had been found with the Chinese participants. Taken together, the results of these two experiments allow us to look for any cross-cultural differences that might be present.

Five different alcoholic drinks, including red wine, white wine, beer, whisky, and Chinese baijiu¹ were included in the study. These drinks were presented in any one of 6 different types of glasses, including 3 types of wine glasses and 3 types of non-wine glasses (see Fig. 1 for an illustration). Specifically, the wine glasses were either narrow, wide, or stemless; whereas the non-wine glasses consisted of a highball glass (i.e., a tall and narrow glass in the cylindrical shape), a rocks glass (i.e., a short and wide glass in the cylindrical shape), and a beer mug. Note that narrow and wide wine glasses are typically used to serve wine, whereas the stemless wine glass is currently not used as widely (e.g., Karwa, 2009). Beer mugs are often used to serve beer, whilst the use of the highball or rocks glass is a little more complicated to ascertain. That is, they are commonly used to present spirits in many western countries such as the USA, whereas they may be used to present tea in China. Note that whisky is currently not one of the most common alcoholic drinks in the Chinese market (Jenster & Cheng, 2008), so it is probably the alcoholic drink that our Chinese participants were most unfamiliar with in the present study. By contrast, Chinese baijiu would likely be quite unfamiliar to the North American participants in Study 2. It is therefore likely that some types of glassware, especially those that are tightly linked to certain specific alcoholic drinks (such as the narrow or wide wine glasses), might be expected to exert a pronounced effect on the ratings of the drinks. It would also seem reasonable to expect cross-cultural difference between the participants from China and the USA in their ratings

of, and willingness-to-pay for, alcoholic drinks such as whisky and baijiu that are more familiar to one group than to the other.

2. Study 1

2.1. Methods

2.1.1. Participants

120 undergraduate students from a major university in mainland China (mean age = 19.6 years, SD = 1.1, ranging from 18 to 23 years; 62 women) took part in this study online in order to obtain credit to fulfil the requirements of an introductory psychology course. None of the participants reported being colour blind. This study was reviewed and approved by the ethics committee at the Psychology Department of Tsinghua University. All of the participants provided informed consent prior to taking part in the study.

2.1.2. Apparatus and materials

The participants took part in the study at <http://www.unipark.info>. Photographs of alcoholic drinks were shown to the participants, one at a time. Five different types of alcohol found in the Chinese marketplace were presented, including beer (Budweiser, Anheuser-Busch InBev), whisky (Chivas Regal 12 Years Old Blended Scotch Whisky, Chivas Brothers Ltd., Paisley, UK), red wine (Apollonia Vin de Pays de L'Herault Red Wine, Vive S.A., France), white wine (Apollonia Vin de Pays de L'Herault White Wine, Vive S. A., France), and baijiu (Hongxing Erguotou; Beijing Red Star Co. Ltd., Beijing, China). Each drink (100 ml) was presented in six different types of clear glass (see Fig. 1 for an illustration), including a narrow wine glass (195 ml capacity), a wide wine glass (259 ml), a stemless wine glass (266 ml), a highball glass (290 ml), a rocks glass (245 ml), and a beer mug (242 ml). There were a total of 30 pictures (5 types of drinks × 6 types of glass).

2.1.3. Design and procedure

A 6 (Glass: beer mug, highball glass, rocks glass, narrow, stemless, or wide wine glass) × 5 (Drink: baijiu, beer, red wine, whisky, or white wine) within-participants experimental design was used. The 30 pictures were presented in a random order, with one picture shown on each page. When each picture was shown, the type of the drink was indicated next to each picture (see Appendix Table A.1 for the words used to describe the drinks). During each trial, the participants were shown one picture and were asked to rate (1) liking, (2) familiarity, and (3) drink-glass congruency (e.g., how much the drink and glass were congruent with each other), on 7-point scales². They were also asked to indicate their willingness to pay for this drink by specifying the amount of money in the unit of CNY (Chinese Yuan, ¥), with 0 indicating no willingness to pay. At the end of the study, the participants were also asked to indicate the frequency with which they drank alcohol (never, occasionally, sometimes, or often). This online study took approximately 15 min to complete.

2.2. Results and discussion

2.2.1. The influence of glassware on the ratings of drinks

Mean rating scores of liking, familiarity, and congruency are shown in Table 1. In terms of correlations between the mean liking,

² Note that in the present study, the participants were also asked to rate the pleasantness of each drink in each of the glasses. However, the liking and pleasantness scores were highly correlated (0.98 and 0.64 in Studies 1 and 2, respectively, $p < .01$), and the results of a separate analysis of pleasantness scores matched a majority of the liking analysis. Therefore, we only report the results of the analysis of the liking scores, but not the pleasantness scores.

¹ Baijiu is a traditional Chinese distilled alcohol (containing 20–60% alcohol) made from sorghum (or other grains). Its clear appearance has led to it being called "white wine" in Chinese or "Chinese liquor/spirits" in English (Liu & Murphy, 2007).

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