



Short Communication

Glass shape influences the flavour of beer

Adrian Mirabito^a, Markus Oliphant^a, George Van Doorn^{a,*}, Shaun Watson^a, Charles Spence^b^a School of Health Sciences and Psychology, Federation University Australia, Victoria 3842, Australia^b Crossmodal Research Laboratory, Department of Experimental Psychology, University of Oxford, Oxford, UK

ARTICLE INFO

Keywords:

Beer
Glass shape
Taste
Flavour
Crossmodal correspondences

ABSTRACT

It is often said that our perception of wine varies as a function of the receptacle in which it is presented. Indeed, glassware has been the subject of extensive study in this category. By contrast, the impact of glassware on the perception of beer has been largely ignored in the field of sensory science research. The current study was specifically designed to investigate the influence of the shape (specifically side curvature) of the glass on people's perception of beer. Fifty-three Australian participants rated (on 10-point Likert scales) a beer presented in one of two glasses. The beer was perceived as being fruitier and more intense when served in a curved-sided glass. Given previous research showing that people match fruitiness with curvature (rather than straightness/angularity), these results fit within the existing literature on crossmodal correspondences between shape and taste properties.

1. Introduction

Beer is the most popular alcoholic beverage worldwide by volume, with global production steadily increasing from approximately 1.3 billion hectolitres in 1998 to almost two billion hectolitres in 2013 (Statista, 2016). Given its growing global popularity, it becomes increasingly important to try and understand how the taste/flavour of beer is perceived and, more importantly, the factors that might enhance the perception of its various sensory qualities (see Wells, 2015). Although a few studies have been conducted on the product-extrinsic factors that influence people's perception of the taste/flavour of beer (e.g., Carvalho, Wang, Van Ee, & Spence, 2016; Carvalho et al., 2016; Sester et al., 2013), this most popular of alcoholic drinks seems to have been somewhat neglected by researchers. The experiment reported here was designed to explore the influence of the shape of the beer glass on the perception of the characteristics of the contents.

1.1. Shape-taste/flavour correspondences

A product's shape, not to mention the shape of its container, associated logo, and any relevant typeface, have been shown to influence many aspects of consumer behaviour (Velasco, Woods, Hyndman, & Spence, 2015; see Spence & Ngo, 2012, for a review), and any shapes that are present on, or near, a food or beverage can influence their perceived qualities (Gal, Wheeler, & Shiv, 2007). In general, people tend to prefer rounded shapes (e.g., circles) over more angular shapes (e.g., triangles or stars; Bar & Neta, 2006; Gómez-Puerto,

Munar, & Nadal, 2015; Silvia & Barona, 2009), and this preference has been observed to extend to food. For instance, in early research, Cheskin (1957) drew attention to the impact of background shapes on people's perception of different products by placing identical products (e.g., crackers) in two different packages, one adorned with triangles, the other with circles. Eighty-percent of the participants preferred the product in the package with circles, often suggesting, when asked, that this product was of 'better quality' (see Westerman et al., 2012, for similar results in relation to product packaging).

Shape has also been shown to influence the drinking experience. For instance, Attwood, Scott-Samuel, Stothart, and Munafò (2012) reported that participants drank an alcoholic beverage (i.e., a lager beer) more slowly from a straight-sided glass than from a glass with curved sides. Interestingly, consumption speed was not affected when the glasses were only half-filled, or when non-alcoholic beverages were presented instead. Similarly, the shape of the glass was found to influence how much of the alcoholic drink was consumed but, once again, did not influence how much of a non-alcoholic beverage was consumed. Parenthetically, Stafford, Fernandes, and Agobiani (2012) have also demonstrated that exposure to product-extrinsic cues (i.e., attributes that, should they be changed, will not change the product or how it functions; specifically, the presence or absence of music in Stafford et al.'s study) altered the taste of alcohol which, in turn, led to increased alcohol consumption. Elsewhere, Stafford and Dodd (2013) demonstrated that the presence of music influenced consumption speed.

It is interesting that both music and shape influence alcohol consumption, and this work may be important with regard to senso-

* Corresponding author.

E-mail address: george.vandoorn@federation.edu.au (G. Van Doorn).

rially ‘nudging’ health-related behaviours. One possible interpretation of the finding that the shape of a glass influenced the amount of alcohol consumed is that a crossmodal correspondence exists because glasses with curved sides along the vertical dimension have been paired with alcoholic beverages repeatedly in the marketplace, and thus a sensory feature in vision is paired with a sensory attribute in taste (see Ernst, 2007; Schifferstein, 2009; Wan et al., 2016, for other examples). Interestingly, consistently and congruently paired stimuli promote processing fluency (the term ‘processing fluency’ refers to the ease with which a person can process a stimulus ensemble; Reber, Schwarz, & Winkielman, 2004) which, in turn, might have motivated the increased consumption of alcohol from these specific product-congruent receptacles.

Researchers have also demonstrated that people generally enjoy drinking beverages more when the receptacle is deemed to be consistent with the contents (Cavazzana, Larsson, Hoffmann, Hummel, & Haehner, 2017; Schifferstein, 2009; Spence & Wan, 2015). Relevant to this point, Wan, Zhou, Woods, and Spence (2015) found that people reported being willing to pay more for a beer when it was presented in a dimpled beer mug, relative to another glass (e.g., a highball or wine glass). They also found that participants preferred the beer when it was presented in the dimpled beer mug, relative to other glass types. Given this information, glass shape seems to play an important role in the perception of beer.

The influence of glass shape on the perceived aroma of wine has been studied extensively. For example, Delwiche and Pelchat (2002) have demonstrated that glass type influences people’s ratings of wine aroma. Similarly, Vilanova, Vidal, and Cortes (2008) found that wine experts’ ratings along dimensions such as aroma, taste, and quality, were influenced by glass shape. Several authors contend that the physical properties of glasses play a role in our ability to perceive the aroma released from the beverage’s surface. For example, Cliff (2001) suggested that larger openings allow aromas to escape prior to evaluation, while others (e.g., Spence, 2011, 2016) have noted that a small-diameter glass allows fewer odour molecules to be released from the surface of the liquid. That said, and consistent with the argument outlined above, it may also be that certain glass shapes have been paired with wine consistently enough to establish an association between the two – think, for example, of the Bordeaux glass or champagne flute. This cognitive association may, in turn, influence aroma perception just as much as any more fundamental associations between flavour and shape properties.

Interestingly, there is a separate body of research assessing the aromas associated with carbonated beverages. For example, Liger-Belair (2003, 2005) studied the factors influencing the perceived aroma of champagne. Of relevance here, Liger-Belair, Bourget, Pron, Polidori, and Cilindre (2012) found that the shape of champagne glasses has the potential to influence the perception of aroma. Specifically, the commonly-used flute glass concentrates CO₂ which might interfere with a consumer’s ability to detect specific aromas. On the other hand, coupe style glasses dilute CO₂ which, in turn, will dilute perceived aromas. As such, perhaps a glass that melds features of these two glass types should be used when drinking champagne. Elsewhere, Cavazzana et al. (2017) assessed the influence of glass shape on the perceived taste and aroma of a cola drink. The cola was rated as more pleasant, and more intense, when presented in a receptacle that was deemed consistent with the contents (i.e., a typical Coca-Cola® glass) than when it was presented in a receptacle that was deemed inconsistent with the contents (e.g., a plastic bottle). As noted by the authors, though, weight differences may have contributed to perceived differences in the drink’s sensory qualities as well (cf. Gatti, Spence, & Bordegoni, 2014).

Although associations between shape and taste have been explored in a range of food and beverage products, the correspondence between shape and the perception of beer remains essentially unknown. Furthermore, the consistent, bitter character and the different bitter/

sweet combinations of beers make it an intriguing topic for empirical research.

1.2. Aims and hypotheses

Given that, in the setting of a bar, beer is often served in a glass, the primary aim of the present study was to explore the impact of the shape of glasses on people’s perception of beer. Similar to previous work (e.g., Attwood et al., 2012; Wan et al., 2015), we explored the influence of the shape, as either curved or straight, of the glass the beverage was served in.

It is known that people tend to form associations between the physical properties of a stimulus (e.g., its shape) and particular tastes. For example, people typically associate round shapes with sweetness (see Deroy & Valentin, 2011; Spence, 2012). As such, we expected that people would rate the beer presented in glasses with curved sides along the vertical dimension as tasting somewhat sweeter than the beer presented in glasses with straight sides on the vertical dimension. Similarly, people sometimes confuse sweetness and fruitiness (cf. Harrar, Smith, Deroy, & Spence, 2013) and, as such, it was expected that people would rate the beer presented in glasses with curved sides along the vertical dimension as being fruitier than the beer presented in glasses with straight sides on the vertical dimension. As mentioned already, people generally enjoy beverages more when they are served in a receptacle that is deemed to be congruent with the contents (Schifferstein, 2009; Spence & Wan, 2015) than when the beverage is presented in a receptacle that is deemed incongruent. Furthermore, it has recently been shown that people prefer, and are willing to pay more for, a beer when it is served in a glass ‘beer’ mug compared to when it is served in a non-standard container (Wan et al., 2015). It is currently common practice to serve beer in curved glasses in pubs across Australia. We, therefore, expected people to rate these glasses as containing beer that was more pleasant, and we hypothesised that participants would be willing to pay more for the beer served in the glass with curved sides.

2. Methods

2.1. Participants

Fifty-three participants ($M = 24.91$ years, $SD = 8.39$ years; range 18–64 years) took part in the experiment. The sample comprised 28 males and 25 females. The participants were asked to “best describe” their beer drinking behaviour. Approximately half of the participants indicated that they either ‘never’ drank beer or ‘only sometimes’ drank beer. The participants were recruited from either a Psychology participant pool, or were members of the student body, staff, or general public who were on-campus at a regional university. Participants recruited from the participant pool received course credit in order to fulfil the requirements of an introductory psychology course they were enrolled in. All other participants took part in the experiment voluntarily. The experiment was approved by the university’s ethics committee, and conformed to the ethical standards for conducting research established by the American Psychological Association.

2.2. Materials

2.2.1. Glasses

The two glasses chosen for this experiment were both transparent and colourless (see Fig. 1). One was a more traditional beer glass with curved sides, as typically found in Australian pubs, while the other had straight sides. Metal washers of different sizes and weights were affixed to the bottom of each glass in order to minimise any weight discrepancies between the glasses (see Fig. 2). The relative weight discrepancies between the two glass types ranged between 42 and 69 g, which was reduced to no more than 1–3 g after attaching washers to the

Download English Version:

<https://daneshyari.com/en/article/5736043>

Download Persian Version:

<https://daneshyari.com/article/5736043>

[Daneshyari.com](https://daneshyari.com)