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Beverage perception and consumption: The influence of the container on the perception of the contents

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ABSTRACT

Drinking, unlike eating, always involves direct contact with the container in which a drink happens to be held. In our everyday lives, we typically consume beverages from glasses, cups, mugs, cans, bottles, and via straws. In this article, we consider the impact that the physical and sensory properties of a drink's container can have on people's perception of the contents. We investigate what happens to the perception of a beverage when the appropriateness of the container (to the contents) is varied. Furthermore, we also review the latest evidence showing that people's consumption behaviours can be influenced by the shape of the cup or glass. The vessel in which a drink is consumed has been shown to affect everything from a consumer's hedonic response to the beverage through to how refreshing they find it. Taken together, then, the available evidence currently supports the view that the vessels from which we drink exert a far greater influence over our perception of the sensory and hedonic qualities of the contents, and on our consumption behaviours, than is often realized. Finally, some of the current marketing opportunities in the area of branded and sensorially enhanced glassware are highlighted.

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Introduction

Whenever we drink, our experience is always mediated by the form of the receptacle in which that drink is contained. One might ask, therefore, just how much of an impact on our perception of a beverage the glasses, cups, mugs, cans, bottles (and straws) from which we often drink actually have. Furthermore, and separate from the perceptual question, one can also ask whether people's consumption behaviours are influenced by the receptacle or means of consumption as well. The emerging body of evidence reviewed here supports the view that the vessels from which we drink exert a much more significant effect on our perception of the sensory qualities of drinks than many people would intuitively guess. In this article, we review the literature regarding how the appropriateness of the drinking container to the contents can also affect everything from how much a drink is liked through to how refreshing the consumer finds it. We also look at the question of whether the shape of the drinking vessel can also influence our

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consumption behaviours. Given the growing realization of just how important the container can be to determining the consumer's perception of, and response to, the contents, marketers are increasingly starting to think about the opportunities associated with the introduction of signature branded glassware that, ideally, conveys some functional and/or perceptual benefit when it comes to the consumer's experience of the contents (e.g., Stead, Angus, Macdonald, & Bauld, 2014).

On the appropriateness of the receptacle to the contents

A number of researchers have investigated the consequences for the drinking experience that are associated with serving a drink from a container that is appropriate versus one that is inappropriate. Normally, what counts as 'appropriate' here is often determined by a rich history of previous experience drinking particular beverages from specific receptacles (see Standage, 2007). For instance, in one study, 61 participants rated hot chocolate, beer, and orange juice samples served in containers (a cup, bottle, or glass) that were either congruent or incongruent with the participants' everyday experience of drinking these beverages (Raudenbush, Meyer, Eppich, Corley, & Petterson, 2002). Interestingly, the hot chocolate was rated as tasting significantly more pleasant when served in a ceramic cup (mean rating of 6.8 on an 11-point pleasantness scale) than when served in either the glass ($M = 6.3$) or the bottle ($M = 6.4$). While this change might not seem that large (0.45 point change on an 11-point scale), it is worth remembering that the participants in this study were informed what they would be drinking at the start of each trial. It would seem likely that the detrimental consequences of serving a hot beverage in a product-incongruent container might be larger under those conditions in which the consumer is surprised to find that the contents do not match the expectations set by the container (see also Cardello, Maller, Bloom-Masor, Dubose, & Edelman, 1985; Deliza & MacFie, 1997; Schifferstein, 2001). Generally-speaking, serving a drink from the appropriate vessel may come, over time, to enhance the drinker's experience of the contents by a process of associative learning (Pearce & Bouton, 2001). Note also that according to the literature on the 'mere exposure effect' (e.g., Harrison, 1977; Jakesch & Carbon, 2012; Pliner, 1982; Suzuki & Gyoba, 2008; Zajonc, 1968, 1980, 2001), those stimuli or, in this case, those specific combinations of stimuli (i.e., vessel and typical contents), that a person is exposed to on a regular basis become more familiar, and at the same time more liked (see Gallace & Spence, 2014, for a review).

We believe that there are a number of interesting cross-cultural questions to be addressed in this area (see also Wan, Zhou, Mu, Du, & Spence, in preparation). For example, if one takes a drink such as gin and tonic, then the appropriate glassware in the UK, not to mention in many other markets is the highball or collins glass. That said, the Spanish and Latin American market for this drink has been revolutionized in recent years in part by the introduction of the balloon copa glass (e.g., Anon, 2013). Hence people in different parts of the world might have very different ideas about what the most appropriate glassware for this particular drink is. Or, to take another example, one can imagine how consumers of different age groups living in developing countries (e.g., such as China) will likely have had different life experiences (e.g., Shu & Zhu, 2009). Hence, it is quite possible that consumers from different cultures and/or age groups may also hold very different views about the appropriateness of a given container for a particular drink (see also Barford & Rohrer, 2014).

On the shape/type of receptacle

Recent research has demonstrated that the shape/type of container can also influence the flavour that we happen to associate with a particular drink colour. So, in a series of cross-cultural studies, the same 7 drinks were presented in three different types of glass to participants from mainland China, the USA, the UK, South Korea, and India (see Fig. 1). The results revealed that the same beverage colour sometimes set up distinctly different flavour expectations depending on both the type of receptacle and the cultural background of the participants (see also Shankar, Levitan, & Spence, 2010). To give an illustrative example, the Chinese participants exhibited different colour–flavour associations for the green-coloured drinks presented in the water or wine glasses from those seen in the participants from the USA, while showing similar flavour expectations when the very same green drink was presented in the cocktail glass (Wan, Woods, Seoul, Butcher, & Spence, 2014; Wan et al., 2014).

On the shape of the wine glass

One drinking receptacle that has undoubtedly received far more research interest than any other is the wine glass (see Spence, 2011, for a review). That said, the results of the extensive body of research in this area are, on the surface at least, somewhat contradictory: while a number of studies have demonstrated that the same wine will be rated very differently when served in different wine glasses (e.g., Anon, 1973; Fischer, 1996; see also Anon, 2011c; Cloake, 2012; Gawel, 2010; McCarthy, 2006), others have reported that people are unable to detect any perceptible difference between samples of the same wine when evaluated in different wine glasses (e.g., Postgate, 1951). According to Spence, these differing results can be made sense of if one takes into account the differing conditions utilized by the researchers in the various studies.

It would appear as though whenever a person can see and/or physically interact with the wine glass when rating the sensory properties of the wine contained within, then the shape and/or size of the glass will impact their ratings of the contents (Cliff, 2001; Hummel, Delwiche, Schmidt, & Hüttenbrink, 2003; Russell, Zivanovic, Morris, Penfield, & Weiss, 2005; Vilanova, Vidal, & Cortés, 2008). Indeed, a highly profitable industry has developed around the matching of specific glass shapes to particular types of wine or even grape varieties (Cloake, 2012; Stead et al., 2014).[1] However, that said, under those strictly controlled laboratory conditions in which a participant's awareness of the glass in which a wine is presented, or has been stored, are removed, then no detectable difference in people's ratings of the sensory properties of the wine is reported (see Delwiche & Pelchat, 2001; Delwiche & Pelchat, 2002; Russell et al., 2005).

In one of the largest laboratory studies to have been conducted in this area, Hummel et al. (2003) gave nearly 200 untrained participants a red wine (a Cabernet Sauvignon) and a white wine (a Chardonnay) to evaluate from one of four different glasses. One wine glass had straight sides, another had a V, or tulip-like shape, while the other two had a bulbous shape (somewhat wider at the bottom than at the top) – one small glass for the white wine and the larger one for the red wine (see Fig. 2A). Despite these differences, the glasses were all equally tall and had a comparable opening diameter. The participants first had to rate the intensity of the odour by sniffing the wine in the glass and then indicating how much they liked it. Next, they tasted the wine, and rated it once again.

[1] *"Riedel initiated a new science of what you could call the interface between wine and drinker: the contact between wine glass and mouth. A different radius of curve or a different contour of bowl, he claimed, changes the flow of liquid as it comes in contact with your lips, gums, teeth, tongue and palate. He not only claimed but also demonstrated, with most persuasive salesmanship, that you can alter the impact, and hence the flavours, by directing the wine to this part or that of the mouth."* (Johnson, 2005, p. 75).