



Application of a written scenario to evoke a consumption context in a laboratory setting: Effects on hedonic ratings

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ABSTRACT

Consumer hedonic testing of products is typically conducted under controlled sensory laboratory conditions. This setting does not accurately represent how food and drink are consumed. Literature demonstrates that consumer hedonic ratings elicited in the natural consumption context differ to those elicited under controlled conditions. This suggests that when removing a product from its natural consumption context, accurate hedonic ratings may not be obtained. The interest of this research was to develop an approach that evokes a consumption context in the sensory laboratory and study its impact on hedonic ratings. A written scenario was developed that was effective at making participants imagine an occasion when they desired a refreshing beverage. Consumer hedonic ratings of four apple juice samples elicited using the evoked consumption context (context condition) were compared to those elicited in a control condition (i.e., no evoked context). Differences in mean hedonic ratings of the samples were observed between the two conditions with greater sample discrimination observed for the evoked context condition. Consumers using the evoked context found it easy to indicate their product liking/disliking, and felt that the liking information they provided was accurate, more so than consumers in the control setting. Sensory practitioners need to be aware of the potential use of an evoked context in a control setting for eliciting product hedonic ratings, and understand its impact on mean hedonic ratings.

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1. Introduction

1.1. Why seek to evoke a consumption context in a controlled laboratory setting?

Consumer sensory testing is carried out to understand consumers' hedonic appreciation toward products. While traditional consumer sensory testing takes place in a controlled sensory laboratory setting (Lawless & Heymann, 1998; Meilgaard, Civille, & Carr, 1999; Stone & Sidel, 2004), application of these testing protocols has been criticized for not taking into account the products' consumption context. Consumer sensory testing performed in the absence of a context (e.g., control setting) has been described as a 'situational fallacy' (Köster, 2003). Though context is often referred to as a location/place with physical characteristics, other associations (e.g., feelings, events, activities, etc.) regarding when the product is consumed may define a product and may also define its consumption context (Lyman, 1989). In this way, different

types of context may be explicitly defined. While sensory qualities of food may allow for recognition and identification, mental contexts (associations) derived from the product, give the product meaning (Lyman, 1989). This would suggest that by removing the product from the context when it is normally consumed, a consumer may have less involvement with the product and accurate hedonic ratings may not be obtained. While a body of recent literature has demonstrated that differences in consumer hedonic ratings are observed when products are evaluated in natural use type conditions, compared to a control-type setting (e.g., Bourtrolle, Delarue, Arranz, Rogeaux, & Köster, 2007; Kozłowska et al., 2003; McEwan, 1997), product testing under natural consumption contexts is expensive and time consuming. In order to more accurately elicit hedonic ratings, an attempt should be made to make consumer testing protocols more realistic in terms of how the products are consumed. To achieve this, it is necessary to explore whether a consumption context can be successfully evoked under a controlled laboratory setting and to understand how hedonic ratings are affected. We consider issues associated with: (i) developing and applying an evoked consumption context, and (ii) the influences of contextual information on hedonic ratings.

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1.2. Developing and applying a method to evoke a consumption context

Different approaches have been taken to evoke consumption contexts. Some studies have used physical means (Bell & Meiselman, 1994; Hersleth, Mevik, Naes, & Guinard, 2003; Petit & Sieffermann, 2007). Physical aspects have been said to provide limited meaning to a consumption context and may be a poor approach to evoke a consumption context (Köster, 2009). A consumption context is more than only physical aspects (e.g., décor). Associations such as emotions, people and weather/time are among those more commonly related to consuming food items (Lyman, 1989). An approach taken by Petit and Sieffermann (2007) used visual, olfactory and auditory cues to induce a context. Authors reported that the physical means (i.e., photo, curtains, lights) may have 'surprised' consumers. Written scenarios have successfully been used to evoke or create different contexts (Belk, 1975; Hansen, 2005; Jaeger & Meiselman, 2004). Written scenarios are statements or brief texts that describe a particular situation meant to evoke a sense of presence in a real situation. Unlike the use of physical means, written scenarios do not require major modifications to the physical environment and depending on how the text is written, allow consumers to personalize the context being evoked.

As recommended by Petit and Sieffermann (2007), 'pre-validation' of the context being evoked is necessary to ensure the contexts' effectiveness. Without accurate portrayal of the context and ability of the consumer to become engaged with the simulation, realism is minimized (Runkel & McGrath, 1972). Some studies have taken an additional step towards ensuring context effectiveness by having consumers provide a written response towards the written scenario used to evoke a context. A study looking at the influence of mood on product evaluation was carried out by Qiu and Yeung (2008). Consumers were asked to think of a recent event that made them feel either happy or unhappy and were then asked to provide a written description of that time. Providing a written response, has been said to increase the availability of such events that exist in the memory (Schwarz & Clore, 1983). The written responses can also provide qualitative data regarding aspects of individual consumer's contexts that would allow further understanding on how the context was created.

1.3. Influences contextual information may exert on hedonic ratings

An evoked consumption context may influence hedonic ratings relative to when no context is evoked (i.e., when hedonic ratings are elicited in controlled laboratory setting). Differences in mean hedonic ratings observed under various testing conditions can be generalized into three categories of effects: span, level, and order. A level effect would be observed if samples were rated equally more/less in different contexts (Boutrolle, Arranz, Rogeaux, & Delarue, 2005; Kozłowska et al., 2003). This would be observed when two samples are rated 5 and 6 in one condition, and 7 and 8, respectively, in another. A span effect would be observed if samples are liked/disliked similarly, but by a greater relative magnitude. This is demonstrated if two samples are rated 5 and 6 in one condition, and are rated 4 and 7 in another condition. As observed by McEwan (1997), the order effect may be observed if samples are liked differently. This could take the form of samples being rated in the same order in both the control and context conditions, but different in their relative magnitudes; or if samples are liked in a different order. For example, sample A is liked more than B in one condition, while B is more liked than A in another condition.

1.4. Aims of study

The first aim of this study was to explore if a consumption context could be effectively evoked in a controlled laboratory setting

using a written scenario. The second aim of this study was to understand how hedonic ratings are affected when elicited using an evoked context in a laboratory setting. Specifically the controlled laboratory setting and evoked context in the laboratory setting were compared for differences in aggregate sample hedonic ratings, sample discrimination and consumers perceptions of how they performed product evaluations.

2. Materials and methods

In this study it was essential to establish that the consumption context being evoked matched the product type under evaluation. Knowing that consumers would really consume the product in the context being evoked was critical in order to obtain relevant hedonic ratings. As indicated by Boutrolle and colleagues, "the usual context of consumption has a leading role in the hedonic evaluation of food products" (Boutrolle et al., 2007). Consumers would not be able to relate to the consumption context if it is not typical of when the product would be normally consumed, making the evoked context ineffective. Following extensive pilot work, apple juice was determined to be an appropriate beverage for the 'refreshing' context; consumers indicated they would consume apple juice when desiring a refreshing beverage. Other products perceived as 'refreshing,' could have been used in this study (e.g., cola). However it is important to point out that while it was critical to establish that the product and context matched, the specific context and product was not the focus of this study. Rather this study was a methodological investigation to explore if a context can be evoked and to study its effect on hedonic ratings.

2.1. Samples

Four apple juice samples were created to vary subtly in two sensory dimensions, such that samples would be similar in mean hedonic ratings but different in sensory character when presented in a controlled laboratory setting. Establishing this would mean that any difference in mean hedonic ratings observed under an evoked refreshing context would be attributed to a difference in the perception of underlying sensory character. The present study tested the hypothesis that an interaction between context and hedonic ratings will be observed when sensory properties are varied subtly within product type. An alternative design might test the effect of context on products that vary to a relatively large extent in sensory properties, either within product type or across different products. For example, the effect of an evoked context on the hedonic ratings for a set of different products (e.g., apple juice, orange juice, cola) could be investigated. For both study designs, interactions between the effects of context and product differences can be estimated.

Using a base apple juice (Fresh-Up Crisp Apple Juice, Frucor Beverages Ltd., Auckland, New Zealand), four samples were created using a 2 × 2 design consisting of citric acid and strawberry essence (Hansells Natural Strawberry Essence, Old Fashioned Foods Ltd., Auckland, New Zealand). These samples will be referred to as A (0.12 g/100 ml citric acid, 0 ml strawberry essence), B (0.12 g/100 ml citric acid, 0.05 ml/100 ml strawberry essence), C (0 g citric acid, 0 ml strawberry essence) and D (0 g citric acid, 0.05 ml/100 ml strawberry essence). A pilot test carried out with consumers ($n = 21$) established that the four apple juice samples were not different in hedonic ratings when evaluated in a controlled laboratory setting. However were perceived as having subtle differences. Acidity was modified as previous studies have demonstrated its influence on perceived beverage refreshment (Labbe, Gilbert, Antille, & Martin, 2009; McEwan & Colwill, 1995). Strawberry essence was added to modify the flavor profile

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