



Evaluating the orientation of design elements in product packaging using an online orientation task



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ABSTRACT

We present a novel experimental paradigm designed to enable graphic designers and marketers to assess the response of consumers to changes in the orientation of various design elements (e.g., food images) on product packaging. In Experiment 1, participants ($n = 305$) rotated one of the visual elements on commercial examples of product packaging (three examples taken from the dried pasta category and one from the wine aisle). In Experiment 2, we assessed how much participants ($n = 301$) would be willing to pay for stimuli oriented in a more versus less preferred orientation. The results of Experiment 1 revealed that participants have distinct, systematic, preferences when it comes to the orientation that specific stimuli should be presented at on product packaging. In certain cases, multiple preferences were observed in the data, while in others, the participants tended to agree on a single preferred orientation. Interestingly, these preferences do not always align with the orientation of the image as it currently appears on the supermarket shelf. Intriguingly, in Experiment 2, the preferred orientation did not always elicit the highest willingness to pay. These results therefore highlight the complex relationship that exists between liking and willingness to pay, and raise a number of questions concerning the role of orientation in visual aesthetics, preference, and perceived value. Importantly, the orientation task is presented here as a potentially helpful new tool for assessing visual aesthetics and preference for product packaging.

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1. Introduction

In recent decades, product packaging has become an increasingly important component of the marketing mix (see Nickels & Jolson, 1976; Spence & Piqueras-Fiszman, 2012). Packaging aesthetics and preference are key elements when considering packaging's interface with the consumer. Previous research has demonstrated that each of the different visual design elements on a product's packaging, such as, for example, its colour(s), shape(s), the style of the typeface, and any written information can all influence consumers' expectations, perception, and product preference (e.g., Bloch, 1995; Creusen & Schoormans, 2005; Mueller & Szolnoki, 2010; Nancarrow, Tiu Wright, & Brace, 1998; Piqueras-Fiszman & Spence, 2015; Velasco, Salgado-Montejo, Marmolejo-Ramos, & Spence, 2014; Velasco, Wan, et al., 2014; Wang, 2013). To date, though, the role of the orientation of any

design elements in the context of product packaging has received far less attention (see Westerman et al., 2013, for one of the few exceptions).

An extensive body of research has shown that the orientation of, for example, shapes and lines can influence how people feel about objects presented visually (e.g., Aronoff, Barclay, & Stevenson, 1988; Collier, 1996; Larson, Aronoff, Sarinopoulos, & Zhu, 2009; Larson, Aronoff, & Stearns, 2007; Poffenberger & Barrows, 1924; Salgado-Montejo, Tapia-Leon, Elliot, Salgado, & Spence, 2015). Indeed, the literature on visual aesthetics and preference certainly suggests that orientation can influence people's preference for visual objects (Lindell & Mueller, 2011; Palmer, Schloss, & Sammartino, 2013, for reviews on visual aesthetics and preference). Whilst aesthetics is known to play a key role in the consumer's experience of, and preference for, product packaging (e.g., Hekkert & Leder, 2008; Reimann, Zaichkowsky, Neuhaus, Bender, & Weber, 2010), one may wonder about the specific impact of the orientation of particular design elements such as food and non-food visuals on packaging preference.

Westerman et al. (2013) evaluated the effect of product type (water and vodka) and shape (round versus angular), orientation

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(downward versus upward pointing), and alignment (left versus right) of the packaging design elements on consumers' perception of the product. These researchers used the same bottle shape and simply manipulated the information presented on the label. Specifically, the label included black and white written information about the product type, and also included a group of design elements whose shape, orientation, and alignment were manipulated during the course of the experiment. Each packaging exemplar was presented to the participants, who had to rate the packages on a number of different dimensions, including liking and purchase likelihood. Relevant to the aims of the present study, Westerman et al. demonstrated that people preferred upward- over downward-oriented design elements in product packaging. The researchers also reported a contour type by orientation interaction on participants' self-reported purchase likelihood. This orientation effect was more pronounced for round than for angular contours, with people more likely to purchase a product whose graphics were both more rounded and oriented upward. Whilst this effect on people's preferences was attributed to different orientations influencing visual balance, it was also acknowledged that further research would be needed in order to clarify the statistical interaction effect on purchase likelihood judgments.

The idea that contour and orientation can interact is particularly intriguing given the plethora of ways in which the different design elements (e.g., symbols, logos, and text) on a product can be arranged relative to one another. That said, it is also likely that the meaning of specific graphics, and possibly also product types, interplay and differentially affect both preference and willingness to try judgments (Bloch, 1995; Creusen & Schoormans, 2005; Schoormans & Robben, 1997).

In the present study, we introduce a new packaging design assessment tool, namely a variant of the online orientation task recently developed by Michel, Woods, Neuhäuser, Landgraf, and Spence (2015) to investigate the impact of orientation on people's perception of the plating of food. In their study, Michel and his colleagues introduced a task designed to assess the orientation preferences of consumers in terms of the visual display of a plate of food. The plate in question is one of the dishes currently served by chef Albert Landgraf in his successful São Paulo restaurant Epice. The participants rotated the plate to their preferred orientation in an online setting. The results revealed clear preferences for specific orientations of the plate. What is more, the participants in a follow-up study reported that they would have been willing to pay significantly more for the food in one of the optimal presentations, than for exactly the same plate of food when presented in a different orientation.

In the present research, we demonstrate that the orientation task can also be used to assess consumers' preferences for several examples of food product packaging that have a salient central design element whose orientation could be changed. In Experiment 1, we took a selection of commercial examples of product packaging, extracted one salient element from the packaging, and thereafter allowed the participants to orient that element into their preferred orientation. In Experiment 2, we assessed whether the orientation selected was obtained as a function of other elements in the design, and also assessed the effect of specific orientations on consumers' willingness to pay (WTP) for the product itself. Finally, we discuss the different findings in light of those found previously concerning visual (packaging) aesthetics and preference.

We chose to evaluate the packaging of Barilla pasta and a bottle of Izadi wine (see Fig. 1) because both pasta and wine packages tend to include a salient central design element whose orientation, we hypothesise, is key to the packaging aesthetic and product perception. As the latter had a downward-pointing black triangle on the label that we thought, based on the available evidence, it



Fig. 1. Three brands of Barilla pasta (Campanelle, Pipette, and Gemelli; a–c) and the Izadi brand of red wine (d).

may be liked a little less by consumers (since downward pointing triangles have been reported to be associated with threat; see Larson et al., 2007; Shen, Wan, Mu, & Spence, 2015; see also Toet & Tak, 2013). The experimental design and subsequent data analysis was based on that introduced by Michel et al. (2015).

2. Experiment 1

2.1. Methods and materials

2.1.1. Participants

Three-hundred-and-five individuals (131 females), whose age ranged from 18 to 88 years ($M = 33.4$ years, $SD = 11.9$), were recruited from Amazon's Mechanical Turk to take part in Experiment 1 in return for a payment of 0.30 US dollars. Only those living in the United States of America were able to take part in the study. The experiment was conducted on 21/09/2014, from 18:00

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