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Do front-of-pack variations attract attention? An eye tracking study

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Abstract

This research investigates the impact on visual attention of the simultaneous coexistence of different FOP versions of the very same product. The authors conducted a laboratory experiment using an eye-tracking method. The participants were randomly exposed to either two identical target FOPs with the image of the products (biscuits) displayed horizontally, or two identical target FOPs with the image of the biscuits displayed vertically, or one target FOP with the image of the biscuits displayed horizontally and the other target FOP with the image of the biscuits displayed vertically. The findings showed that FOP variations catch respondents' attention. To our knowledge, this is the first time that the effects of FOP variations have been investigated. On a managerial level, the current study offers a simple and cost-efficient solution to catch consumers' attention in a clustered retail environment, which is the first step to a product purchase.

Keywords: FOP variation, product package, eye-tracking, attention

1. Introduction

There is a mantra in advertising that stresses the importance of permanence with respect to the message, suggesting that consumers would be lost if a brand kept changing its positioning and slogan. This also applies to the visual messages emitted by a company. For example, it has long been considered that the logo - as the brand's visual essence - needs to remain constant, otherwise the brand is exposed to a risk of disenchantment. And indeed, numerous logotypes, such as Ford, Coca-Cola, and General Electric have remained identical or undergone only minor changes over time. The same general idea applies to product packaging. However, in recent years, limited edition packaging is frequently created for special events to replace the original product package for a limited period of time. Coca Cola for instance, brings out Christmas-edition cans during the festive season. The company also launched a globally successful "share a coke" campaign that put popular first names on the different bottles. This concept has since been taken up by many brands around the world, such as Pepsi, Lindt and Weichuan. Thus, different visual versions of the same product often coexist simultaneously on supermarket shelves. Despite the emerging popularity of FOP variations in real-world business, research on its impact on consumer behavior remains scarce

2. Conceptual Framework

It is well established that the deployment of consumers' attention is guided by two different mechanisms. First, 'top-down' attention (endogenous attention or goal-oriented attention), which involves task-dependent cues, refers to the voluntary allocation of attention to certain products (e.g., "where can I find breakfast cereals in this store?"). Second, 'bottom-up' attention (exogenous attention or stimulus-driven attention) that involves image-based saliency cues refers to a rapid and involuntary switching of attention to unexpected, novel or salient stimuli (e.g., "pink for a coffee product package ... that's unusual!"). The impact of different factors on bottom-up attention has received increasing popularity in the literature of marketing and food science. For example, in a comprehensive study on food image presentation, Gere et al. (2020) examined the influence of several factors (stimulus size, picture background, stimuli orientation, product group and number of alternatives) on bottom-up attention. In line with the current study, they showed that the orientation of food image (e.g., apple, pear or gummy bear) influenced time to first fixation and first fixation duration significantly, but not fixation duration nor fixation count.

The bottom-up attention process is guided by the visual saliency of the different items present at a specific moment in the visual field. According to Borji and Itti (2012, p.478), "it [visual saliency] is basically a process that detects scene regions different from their

surroundings.” The perceptual saliency of stimuli critically depends on the surrounding context. Thus, visual saliency is not only defined as a physical property of an object (such as color, shape, motion), but also as the difference between this object and other objects in a visual scene. Itti and Borji (2014, p. 1126) note that “visual salience is sometimes carelessly described as a physical property of a visual stimulus. It is important to remember that salience is the consequence of an interaction of a stimulus with other stimuli.” The current study aims to investigate the effect of the simultaneous coexistence of different FOP versions of the very same product on attentional processes. When FOP variations introduce visual differences between similar items, visual saliency consequently increases, triggering bottom-up attention. Our study therefore posits that simultaneously displaying FOPs of the same product, but with visual variations, will gain more attention than displaying identical FOPs next to one another.

3. Method

To examine the influence of FOP variations on consumers’ visual attention, a laboratory experiment was conducted using an eye-tracking method.

3.1 Sample

One hundred and sixty-five participants (150 women) aged 20 to 48 years ($M = 26.95$; $SD = 6.16$) were recruited by a marketing agency. All the participants declared that they had normal or corrected-to-normal visual acuity. The study was approved by the Ethics Committee of the School of Management where it was conducted (France).

3.2 Stimuli

To study the influence of FOP variations, we chose the savory biscuit category. The rationale behind this choice is that savory biscuits are frequently purchased and widely consumed by men and women of all ages in the country where the experiment was conducted (France). As we did not want to create a completely new version of the FOP but simply wished to introduce FOP variations, we asked a professional design agency to keep the general appearance of the FOP and simply change the layout of the image of the biscuits on the FOP in order to obtain two versions, one with the biscuits arranged more or less horizontally and one with the biscuits arranged more or less vertically. In order to increase external validity, six different sorts of savory biscuits were studied, and the target FOPs were presented on shelves surrounded by distractor FOPs to reproduce a natural retail environment. Each participant was exposed to three planograms composed of three shelves (top, middle and bottom). On each planogram, two target FOPs were placed side by side on the top shelf (planogram 1: *feuilleté sésame pavot* (sesame and poppy seed flaky fingers); planogram 2: *mini-crêpes cheddar* (cheese crepes); planogram 3: *torsades chèvre romarin* (goats cheese straws)), and two target FOPs were placed side by side on the middle shelf (planogram 1: *palmier olives noires* (black olive biscuits); planogram 2: *mini-crêpes Roquefort* (blue cheese crepes); planogram 3: *mini-torsades tomate olive origan* (mini oregano tomato and olive flaky bites).

3.3 Experimental design

To investigate the influence of FOP variations on consumer attention, a mixed design was chosen combining repeated measures (the participants were asked to look successively at three planograms) and three between-groups. The participants were randomly assigned to either two identical target FOPs with the image of the biscuits displayed horizontally ($N=45$) (*FOP horizontal condition*), or two identical target FOPs with the image of the biscuits displayed vertically ($N=56$) (*FOP vertical condition*), or one target FOP with the image of the biscuits displayed horizontally and the other target FOP with the image of the biscuits displayed vertically ($N=64$) (*FOP variations condition*).

3.4 Procedure

Each participant was given a specific arrival time and was welcomed to the laboratory by a research assistant. After being informed of the eye-tracking procedure and giving their written consent, the participants were seated facing a 24" HP screen, below which a remote eye-tracking system had been installed. The benefit of using this equipment is that no devices are attached to participants' faces, giving them a certain freedom of movement (Adil et al., 2018). The participants were positioned about 70 cm from the screen so that the screen package size matched the real package size as far as possible. Following a calibration phase successfully completed by all the participants, the participants were asked to look at the planograms as if they were planning to make a purchase in this category in a real store. The planograms were presented during five seconds and in the same order under the three experimental conditions. After viewing the three planograms, the participants were asked control questions to ascertain their involvement with the savory biscuit category, their knowledge of the stimulus retail brand "Les Créations" (yes/no), and if the answer was yes, whether they had already bought this retail brand's savory biscuits (yes/no). Their frequentation of the retail brand store was also assessed (Would you say that you shop at "Intermarché" stores: never, exceptionally, from time to time, regularly, exclusively?). The participants also answered socio-demographic questions. Finally, they were given a full debrief concerning the aims of the study and a 20-euro gift card to thank them for their time.

3.5 Eye movement recording and analysis

Using an eye-tracking device, eye movement was used as a proxy for visual attention. Fixations were defined by an absence of saccades and blinks for at least 50 ms. To measure how attention was distributed across the planogram, an area of interest (AOI) was drawn around the four target FOPs on each planogram. Attention devoted to the AOI was measured by the 'fixation time' (FT) (total duration of the fixations in milliseconds within an AOI) and the 'fixation count' (FC) (number of fixations within an AOI) (Lacoste-Badie et al., 2019).

4. Findings

A mixed design ANOVA was conducted on the dependent variables. There was a significant main effect of the FOP condition on both FT and FC. The results revealed that participants spent longer looking at the specified AOI (target product FOPs) in the FOP variations condition ($M=1166\text{ms}$, $SD=680$) than in the FOP identical condition, whether the format was horizontal ($M=895\text{ms}$, $SD=548$) or vertical ($M=953\text{ms}$, $SD=650$) ($F(2, 162) = 6.342$, $p = .002$). They also made more fixations on the specified AOI in the FOP variations condition ($M=5.06$, $SD=2.60$) than in the FOP identical condition, whether the format was horizontal ($M=4.18$, $SD=2.38$) or vertical ($M=4.23$, $SD=2.51$) ($F(2, 162) = 5.209$, $p = .006$). In both eye-tracking measures (FT and FC), the difference between the horizontal and vertical formats was not significant ($p > .05$). Thus, the hypothesis that FOPs displaying visual variations gain more attention than identical FOPs is supported. There was also a significant planogram effect for both FT ($F(1.9, 312) = 65.417$, $p = .000$) and FC ($F(1.9, 312) = 41.593$, $p = .000$), indicating in the three FOP conditions that attention towards the AOI on the first planogram was greater than attention towards the AOIs on the second and third planograms. In both eye-tracking measures (FT and FC), the difference between the second and third planogram was not significant ($p > .05$). However, there was no significant interaction effect between the FOP condition and the planogram for either fixation time ($F(3.85, 312) = .237$, $p = .912$) or fixation count ($F(3.85, 312) = .503$, $p = .727$).

We also analyzed the data using ANCOVA with individual variables (age, gender, working status, education, knowledge of the stimulus retail brand, frequentation of the retail brand store, involvement with the savory biscuit category) as covariables and no direct effect or interaction effect was observed on the dependent variables ($p > .05$). Moreover, as expected, the participants had little knowledge of the target savory biscuit retail brand: 75%

of them declared that they did not know the brand, while only 18% declared that they shopped in the target brand store ‘regularly’ or ‘exclusively’.

5. Discussion

In the present study, FOP variations are introduced by preserving the overall appearance of FOP and merely modifying the layout of product images. All the FOP elements (brand, category name, slogan, images) remain the same. To our knowledge, this is the first time that the effect of the coexistence of two different FOPs for the same product has been studied. Based on Itti and Borji (2014), who stressed the importance of considering saliency not just on the basis of the physical property of a visual stimulus (e.g., color or size) but also as the consequence of an interaction of a stimulus with other stimuli, the current study showed that slight variations between two FOPs for the very same product placed side by side increases visual saliency and catches consumers’ attention. The current research offers critical insights for brand manufacturers. Since consumers say that they make most of their purchasing decisions in store (POPAI 2014), attracting their attention in a cluttered retail environment is hard. While retailers control most of the aspects that influence consumers’ in-store attention, such as number of facings or product position, manufacturers control one of the most striking factors, namely, the FOP. The current study proposes a simple and low-priced solution to make a product stand out from the in-store competition and attract consumer attention, which is the first step towards the purchase of a product. Future research needs to consider the influence of the introduction of FOP variations on declarative measurements, such as perceived assortment size (Pizzi & Scarpi, 2016), perceived shelf complexity (Bigoin-Gagnan & Lacoste-Badie, 2018) and purchase intention. In conclusion, by bringing greater variety to the shelves the findings of this study are useful for designers, marketers and retailers.

References

- Adil, S., Lacoste-Badie, S., & Droulers, O. (2018). Face Presence and Gaze Direction In Print Advertisements - An Eye-Tracking Study. *Journal of Advertising Research*, 58(4), 443-455.
- Borji, A., & Itti, L. (2012). Exploiting local and global patch rarities for saliency detection. In *Proceedings of IEEE International conference on computer vision and pattern recognition*, Providence, Rhode Island, 478-485.
- Gere, A., Danner, L., Dürschmid, K., Kókai, Z., Sipos, L... (2020). Structure of presented stimuli influences gazing behavior and choice. *Food Quality and Preference*, 83, 103915.
- Hummel, G., Zerweck, I., Ehret, J., Winter, S. S., & Stroebele-Benschop, N. (2017). The influence of the arrangement of different food images on participants’ attention: An experimental eye-tracking study. *Food Quality and Preference*, 62, 111-119.
- Itti, L., & Borji, A. (2014). Computational models: Bottom-up and top-down aspects. In Nobre, A.C. and Kastner, S. (Eds), *Oxford Handbook of Attention*, Oxford University Press, 1122–58.
- Lacoste-Badie, S., Minvielle, M., & Droulers, O. (2019). Attention to food health warnings in children's advertising: a French perspective. *Public health*, 173, 69-74.
- Pizzi, G., & Scarpi, D. (2016). The effect of shelf layout on satisfaction and perceived assortment size. *Journal of Retailing and Consumer Services*, 28, 67-77.
- POPAI (2014). The 2014 POPAI Mass Merchant Shopper Engagement Study: Media Report. Available at <http://www.prweb.com/releases/2014/02/prweb11572195.htm>