

Shopping Mission And Assortment Organization: Compatibility And Discrepancy Between Their Nominal Values

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Abstract

Electronic commerce platforms allow marketers to easily and inexpensively adapt the store layouts to better present and organize their product and service offerings. Adjusting stores to increase relevance to consumer need states, can be an important step for marketers on their path to the realization of consumer engagement. However, little do we know about the interplay of (electronic) store layouts and customers' shopping mission and how it shapes browsing and purchasing behavior. In this paper we examine instances of compatibility and discrepancy between (the values of) shopping mission and e-shops' assortment organization on behavioral and metacognitive variables such as basket size, basket variety, and process fluency. The results show that when in correspondence (discrepancy) the values of shopping mission and assortment organization leads to increased (decreased) processing fluency and decreased (increased) perception of time spent shopping. Moreover, we report analogous results with respect to basket size, basket variety, and actual shopping duration and shopping path (number of pages viewed).

Compatibility & Discrepancy, Shopping Mission, Assortment Organization

1. Introduction

The importance of relevance in the contemporary retail landscape is evident. Nowadays, consumers are daily bombarded, both in the context of their online and their offline purchases, by an ever-increasing number of pervasive messages, offerings, promotions, and calls to action. In contrast with physical shopping environments, in computer-mediated environments, electronic commerce platforms allow marketers to easily and inexpensively adapt the layouts for the presentation of their products and services. By adjusting their servicescape in order to increase relevance to their customers, marketers can make an important step on the path to the realization of consumer engagement [1].

Prior studies suggest that online grocery shopping enables consumers to shop much more quickly by occasion or for targeted fill-in trips[2], precisely when a trip to the grocery store is most difficult [3]. Past research further suggests that relatively concrete shopping trips, such as the purchase of products for immediate or same-day consumption, explicitly signal the reasons shoppers enter stores. Shopping mission [4], i.e., the product-related categorization of shopping trips that involves the specific need state(s) of shoppers entering stores, provides

information valuable for the development of targeted, relevant, and effective shopper marketing activities.

The presentation and organization of grocery assortments to better meet consumer shopping needs in the path to purchase is a key element in the shopping process and is of utmost importance for both online and bricks-and-mortar retailers [5]. In their quest to increase relevance and convenience, but also to drive category and basket growth, retailers have recently begun organizing product categories according to the missions they serve [6]. Brick-and-mortar retailers can utilize sales data and information from loyalty schemes to identify shopping missions and inform the development of the organization of assortments. Online grocery stores can further tap on the data generated from website cookies. Such technologies offer a reliable source of information (such as items added in the shopping cart) and record the user's browsing activity (including clicking particular buttons, logging in, or recording which pages were visited in the past), knowledge much valuable for the development of relevant assortment organizations.

Critical in this process is the acknowledgement that shopping mission and assortment organization variables are of nominal nature, that is, have mutually exclusive attribute values, or labels. The set of values, or levels of both shopping missions and mission-relevant assortment organizations are bounded by the particular retail context that the shopping task involves. Some examples of value sets from the grocery retail context are “breakfast,” “lunchtime meal deal,” and “barbecue party;” “gift,” “engagement,” and “anniversary” for a jewelry retail context; and “going out,” “office,” and “sportswear” for a clothing retail context.

Common sense and past research [7], [8] corroborate that the degree in which the shopping mission is reflected in the assortment would result in a subjective feeling of ease of use and an increase in the speed of processing the shopping environment. However, little do we now about circumstances where, shopping missions have been pre-specified and clearly match (or not) the assortment as presented. Particularly, no prior research investigates the behavioral and metacognitive consequences of instances of correspondence and discrepancy between the nominal values of shopping mission and assortment organization. In what follows, we begin by discussing the essential properties of instances of correspondence and discrepancy between shopping mission and assortment organization and then develop a set of hypotheses with respect to their behavioral and metacognitive outcomes by reviewing the relevant literature. Next we rely on an online experiment to test our assertions. Finally, we conclude by discussing the theoretical and managerial implications of our findings, and by providing directions for future research.

2. Research Background and Hypotheses Development

Congruence is defined as the quality or state of corresponding, agreeing, or being compatible between two or more entities or values. Congruence entails both the essential quality of conformance and that of correspondence, the former refers to a correspondence in form or appearance, while the latter relates to compatibility, or the capability of existing or performing in harmonious or congenial combination. Prior research has been confounded on the investigation of the attitudinal and behavioral outcomes of instances of conformance between assortment organization and consumers' internal organization schemes [7], shopping objectives [8], and hedonic focus [9]. However, in the context of online grocery shopping, and especially in the question of relevance between shopping mission and assortment organization, it is critical to understand the effects of the compatibility or discrepancy between the product-related categorization of consumption need states and that of the organization of grocery choice sets.

Prior research suggests that the fit between two factors induces a subjective experience of engagement or fluency [10]–[12]. Increased engagement from such fit induces a sense of feeling-right [13]–[15]. Therefore, we suggest that the compatibility between retailers’ externally-imposed-grocery-assortment-organization-values (e.g., “breakfast,” “lunch time meal deal,” “outdoor barbeque party”) and consumers’ internally-induced-shopping-mission-values will result in instances of a subjective experience of ease, which in turn will affect the perception of time spent shopping. We suggest the reverse effects in case of a discrepancy. More formally:

H₁: A compatibility (discrepancy) between the values of shopping mission and assortment organization leads to:

- (a) increased (decreased) processing fluency.*
- (b) increased (decreased) perception of time spent shopping.*

In the case of compatible values between shopping mission, that is, the reason consumers enter stores, and the presentation of products in the store, we anticipate that consumers will find the organization of products relevant and thus the product offered more compatible with their overall shopping task. For example, when considering which products to purchase for a dinner with a guest, a consumer is more likely to buy wine to complement the meal if the assortment organization combines beef with complementary products, such as red wine, within a dinner organization. Hence, we anticipate that compatibility between the values of shopping mission and assortment organization will have a positive effect on a number of basket attributes, such as the number of total items purchased, the number of different categories purchased, and the total basket value. We suggest the reverse effects in case of a discrepancy. More formally,

H₂: A compatibility (discrepancy) between the values of shopping mission and assortment organization leads to:

- (a) larger (smaller) basket size.*
- (b) larger (smaller) basket variety.*
- (c) larger (smaller) basket value.*

Moreover, instances of compatibility between the values of shopping mission and the organization of grocery assortments will have positive effects of shopping trip outcomes. Similarly, to the metacognitive consequences and to the effects on basket attributes, we anticipate that a compatibility between the values of shopping mission and assortment organization will have a positive effect on the overall engagement in the shopping process, such that will result in a longer shopping duration and a lengthier shopping path. We suggest the reverse effects in case of a discrepancy. More formally,

H₃: A compatibility (discrepancy) between the values of shopping mission and assortment organization leads to:

- (a) longer (shorter) shopping duration.*
- (b) longer (shorter) shopping path.*

3. Method

The Study employed a 2-group (breakfast vs. outdoor birthday party shopping mission) between-subjects experimental design. We used an online grocery store developed through an open source platform for online shops (Prestashop). The store featured a mission-based assortment organization which included “breakfast,” “meal,” “dessert,” “snack,” and “toast” shopping mission values (see Figure 1).

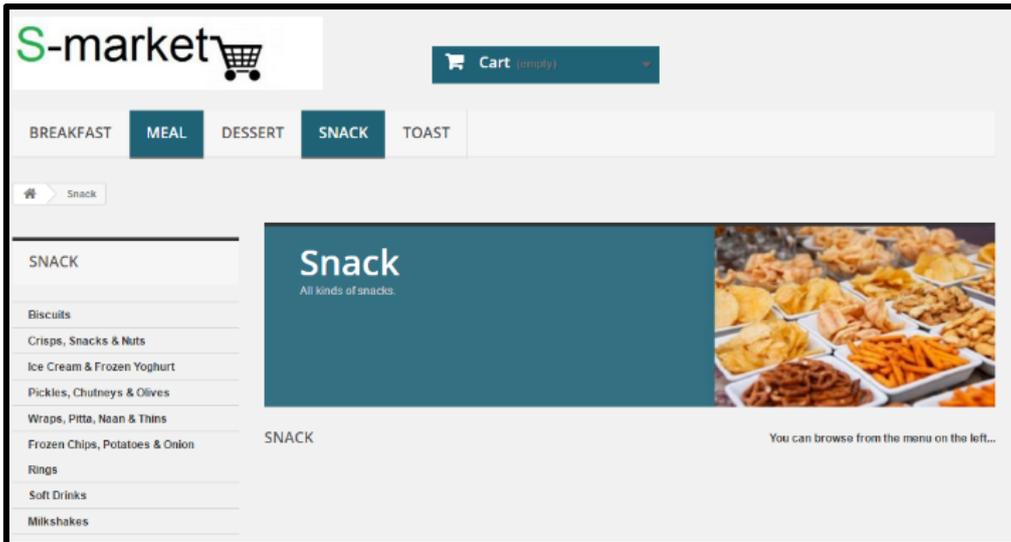


Figure 1: Mission-based Assortment Organization

We manipulated (primed) participants' shopping missions through two different shopping task instructions developed with php, html and css code. Fifty-one participants were recruited ($M_{age}=30.10$, Female=22). Participants initially were directed to a welcome page after which they were randomly directed to the two different instructions pages of the experiment (see Figure 2). Participants then performed the shopping task and after check out were directed to a google forms questionnaire.

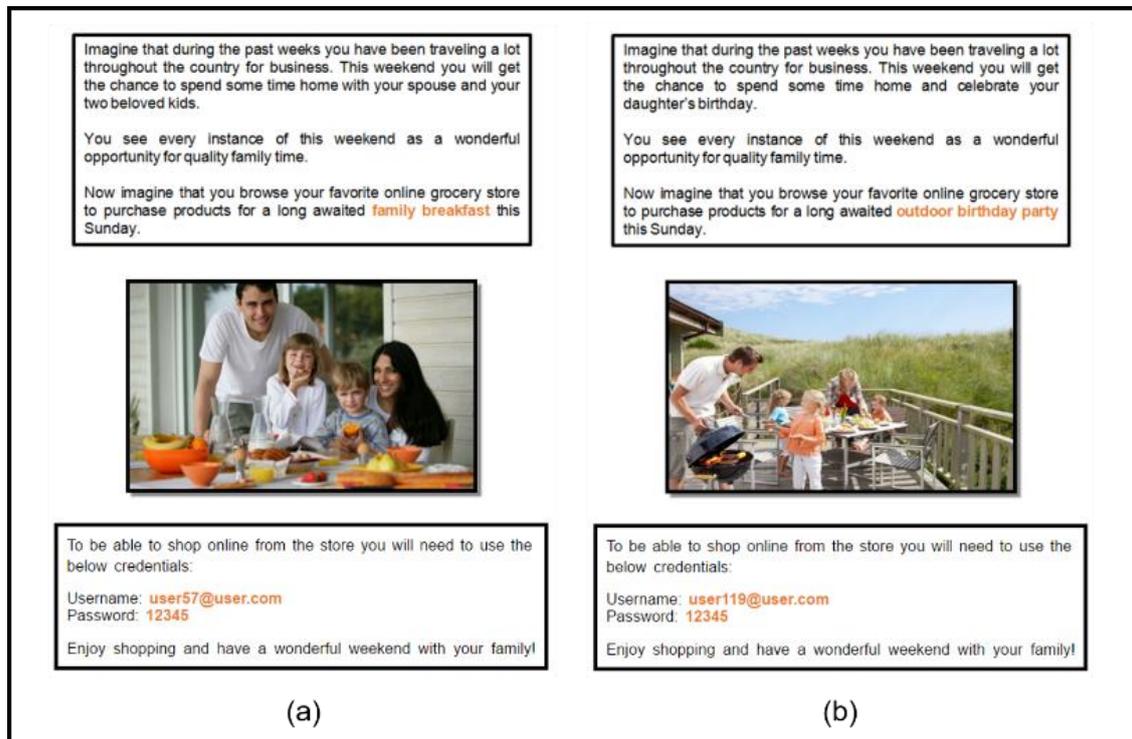


Figure 2: Breakfast (a) and Outdoor birthday party (b) shopping missions

4. Measures

Processing Fluency and Perception of Time Spent. The study included a process measurement of fluency consistent with prior literature on metacognition[16]. We measured processing fluency using a five-item scale ($\alpha = .89$) with the following items: “The way products are placed within this store makes ...” (1) finding products, (2) choosing products, (3) visually processing this store’s interior, (4) visualizing this store’s interior with my eyes closed, and (5) describing this store’s interior, at a later point in time “very difficult” (1) to “very easy” (7). The perception of time spent was measured using a single item scale: “I spent a lot of time when purchasing in this store” (1) “strongly disagree” to (7) “strongly agree.”

Basket Size, Variety and Value. Right after participants confirmed their order, quantitative data about their basket are gathered in the admin panel of the e-commerce platform. Basket size refers to the number of products each participant included in his or her final cart. Basket variety refers to the number of unique product categories each participant included in his or her final shopping cart. Finally, basket value refers to the total monetary value (in euros) of each final order.

Shopping Duration and Path Length. We captured participants’ shopping duration and path length through Google Analytics, a web analytics service offered by Google that tracks and reports website traffic. Shopping duration was captured via the session duration metric, which refers to the total duration of all sessions (webpages) for each participant counted in seconds . Shopping path length was measured via the pageviews proxy measure. Pageviews are the total instances of a page being loaded (or reloaded) in a browser.

5. Results

Effects on metacognitive experiences. A one-way between-subjects ANOVA was conducted to compare the effect of the shopping mission and assortment organization values on processing fluency, in compatibility (breakfast), and discrepancy (outdoor birthday party) conditions. There was a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 4.47, p = .04$]. Post hoc comparisons indicated that the mean score for the compatible condition ($M = 5.13, SD = .91$) was significantly different than the discrepant condition ($M = 4.51, SD = 1.18$). Furthermore, a one-way between-subject ANOVA was conducted to compare the effect of the shopping mission and assortment organization values on perceived time spent. There was a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 7.62, p = .01$]. Post hoc comparisons indicated that the mean score for the compatible condition ($M = 3.34, SD = 1.40$) was significantly different than the discrepant condition ($M = 4.55, SD = 1.71$). Taken together, these results suggest that instances of compatibility and discrepancy between the values of shopping mission and assortment organization have an effect on both processing fluency and perceived time spent, lending support for H_{1a} and H_{1b} . Specifically, our results suggest that instances of compatibility lead to an increased subjective experience of ease (processing fluency) and to a decreased subjective perception of time spent shopping for consumers.

Effects on basket attributes. A set of three one-way between-subjects ANOVA were conducted to compare the effect of the shopping mission and assortment organization values on basket size, basket variety, and basket value, in compatibility (breakfast), and discrepancy (outdoor birthday party) conditions. With respect to basket size, there was a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 6.33, p = .02$]. Post hoc comparisons indicated that the mean score for the compatible condition ($M = 16.66, SD = 10.29$) was significantly different than the discrepant condition ($M = 10.32, SD = 6.36$). With respect to basket variety there was similarly a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 10.32, p = .002$]. Post hoc comparisons indicated that the mean score for the

compatible condition ($M = 13.34$, $SD = 7.18$) was significantly different than the discrepant condition ($M = 7.50$, $SD = 5.27$). Finally, there was an insignificant effect on basket value at the $p < .05$ level for the two conditions [$F(1, 49) = .45$, $p = .51$]. Altogether, these results suggest that instances of compatibility and discrepancy between the values of shopping mission and assortment organization do have an effect on basket size and basket variety, providing support for H_{2a} and H_{2b} . Our results suggest that instances of compatibility lead to an increased basket size and variety. However, our results suggest that the compatibility and discrepancy between the values of shopping mission and assortment organization do not have an effect on basket value, leading to a rejection of H_{2c} .

Effects on shopping trip attributes. A set of two one-way between-subjects ANOVA were conducted to compare the effect of the shopping mission and assortment organization values on shopping duration and shopping path length, in compatibility (breakfast), and discrepancy (outdoor birthday party) conditions. With respect to the shopping duration, there was a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 8.29$, $p = .006$]. Post hoc comparisons indicated that the mean score for the compatible condition ($M = 904.17$, $SD = 561.34$) was significantly different than the discrepant condition ($M = 515.45$, $SD = 335.19$). Furthermore, a one-way between-subjects ANOVA was conducted to compare the effect of the shopping mission and assortment organization values on shopping path length. There was a significant effect at the $p < .05$ level for the two conditions [$F(1, 49) = 7.75$, $p = .008$]. Post hoc comparisons indicated that the mean score for the compatible condition ($M = 55.28$, $SD = 29.61$) was significantly different than the discrepant condition ($M = 35.05$, $SD = 19.30$). Succinctly, our results lend support for H_{3a} and H_{3b} that instances of compatibility lead to a longer shopping duration and a longer shopping path for consumers.

6. Conclusions

This work sheds light on the issue of relevance within online retail store. More specifically, it investigates the behavioral and metacognitive consequences of instances of correspondence and discrepancy between the particular nominal values assumed by consumers for their shopping mission and by retailers for their assortment organization. Through an online experiment we show that when in correspondence, shopping missions and assortment organization values lead to increased basket size and variety as well as to increased shopping duration and shopping path length. Metacognitive evaluations, such as processing fluency and perceived time spent shopping are similarly affected by the correspondence of shopping missions and assortment organizations. These findings have important implications for online stores. Retailers and manufacturers of consumer packaged goods should be cognizant of the different shopping mission values consumers assume before entering stores and the interplay of these with different assortment organization configurations. Website technologies, such as cookies, can be utilized to offer such information and electronic commerce platforms can be employed to adapt and personalize assortment organizations accordingly. We have shown that both the time spent online and the length of shopping path can be positively affected in the case of a correspondence between shopping mission and assortment organizations. Additional research could address this study's limitations and build on its findings. Particularly, future research could investigate whether the nature of shopping mission values examined (i.e., breakfast and outdoor birthday party) affect the study's metacognitive and behavioral results. For instance, a further investigation could examine whether the statistically insignificant effects with respect to the basket value are due to the shopping mission values examined.

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