# Online food shopping: the impact of products' categorization

**Abstract**

Communication plays different roles according to the various sectors it is applied to. In the large-scale retail trade of products for fast moving consumer goods, the retailer's communication distinguishes from that of the brand industry primarily because of its contents and its means. Within the store, communication can take place through displays and signs, referred to as POP (Point of Purchase), placed in the store in strategic positions, with the aim of informing customers and encourage them to purchase the promoted products. Among all the different shopper marketing tools available, the display must be cited.

The display is the representation through which products are organized and displayed according to the aggregation criteria used to stimulate emotions and maximize sales.

If on one hand there is a wide literature about the relevant impact on the display management on shoppers' behavior inside physical stores, the impact of the virtual display during online experiences remains mostly unknown. The present work aims to measure the impact of different types of online products' aggregation (namely lifestyle, usage occasion, nutritional value and price) on perceived clearness and usefulness of the categorization, overall level of satisfaction and intention to buy from that online display. Results of a repeated measures ANOVA give relevant cues to retailers that want to promote sales using online channels.

**Introduction**

Communication can be described as the act of transmitting a message: it is a major human skill and a very important aspect of modern society. At the marketing level, however, communication corresponds to the branch of the economy that deals with promoting a product and which creates a closer bond between the producer and the customer. Communication plays different roles according to the various sectors it is applied to. In the large-scale retail trade of products for fast moving consumer goods, the retailer's communication distinguishes from that of the brand industry primarily because of its contents: Industries communicate their product/service, while the retailer focuses communication on its own policies. Promotion is essential in attracting the consumer to the store, by increasing the average value of purchases and creating the possibility of future repurchases.

Within the store, communication can take place through displays and signs, referred to as POP (Point of Purchase), placed in the store in strategic positions, with the aim of informing customers and encourage them to purchase the promoted products.

Many retail chains are still investing most of their resources in brick-and-mortar stores in which sales take place to better promote and enhance the offer: The POP elements enrich the visual shopping experiences of customers by offering them information. They increase sales potential of the store, allowing customers to try the products before purchasing.

Among all the in store marketing levers that can be managed by retailers, display must be cited.

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The shelf space distribution and the products display must facilitate the readability of the offer. An effective display highlights the complementarities between the different products belonging to the same product group, enhances their value, and inspires new ideas, therefore it must attract the customer, stimulate emotions, inform the consumer, create product culture, simplify the purchase of planned products, and stimulate impulse purchases.

However, the development of the Internet have placed grater focus on the integration of retailer services with an online sales channel in order to offer a wider selection of products and to personalize the information about the products and services offered that each customers.

If, on one hand the role of the display has been widely tested in store, few contributions focus their attention of online shelf. Given these considerations, the present work aims to understand how different products aggregations can impact the effectiveness of an online display.


**Literature review**

The product's absolute and relative shelf positioning might strongly affect consumer choices, and the effect of shelf design on consumers' purchase decisions in brick-and-mortar grocery stores has been widely studied throughout the years. Researchers claim that those products that enjoy more shelf space, a greater number of facing and that are placed on better shelf positions (i.e. eye-level or central to the shelf) are more likely to be purchased (Desmet and Renaudin, 1998; Drèze et al., 1994). When retailers design the shelves, they consider products

placed at the horizontal extremes as perceived to be discounted, while products placed in the center of the shelf are those perceived as more popular. When taking into account vertical positioning, instead, eye-level products is the most effective allocation in terms of product sales (Van Nierop et al., 2008), while products placed on the higher shelf are perceived to be expensive and powerful, and those placed on the lower shelves are considered as cheap.

More recent studies claim that the effect of vertical or horizontal positioning depends on the shelf entrance point because, according to the primacy effect, products that are encountered earlier are often the most chosen (Broere, Van Gensink, and Van Oostrom 1999), as well as products that are placed close to the highly preferred.

The mere categorization effect provided by Mogilner et al. in 2008 confirms that the amount of product categories might influences the consumer satisfaction due to the variety and the possibility of evaluation on alternatives. However, it should be noticed that the best way to categorize products is the goal-based categorization, because it can affect product sales and diminish feelings of an overwhelming amount of products presented in the retail store.

Studies confirm the development of perceptions by consumers about the size of the assortment offered display function are different when display techniques are based on attributes which importance is almost comparable, or when a particular attribute drives the decision process (Pizzi and Scarpi, 2016). This means that the perceived satisfaction is not influenced only by the number of references positioned on the shelf, sub-categories, and brands, but also by the display layout and criteria.

Thus, different shelf design criteria have an impact on consumers.

If the role of the display has been stressed in the literature, consistent analyses of online shelf effects have been lacking. Online retails are very different from traditional brick-and- mortar stores, and consumer behavior in responses to merchandising instruments in the digital context is expected to be very divergent. Online retailers might benefit from a freedom in the graphical layout of virtual shelves, and changing display criterion is easier, less expensive and less time-consuming than for bricks-and-mortar retailers (Pizzi and Scarpi, 2016).

Digital shelves are smaller and easier to read and consequently the product search processes is facilitated thanks to limited eye movements; Consumers might scroll across screens and scan the entire assortment, or might just research the desired product making shelf positioning less effective. Moreover, unlike traditional stores, in online context retailers can allocate only one facing to each product. Therefore, shelf space allocation effects do not subsist.

To this regard, some scholars claim that shelf management is irrelevant in the online context (Menon and Kahn, 2002), while other studies suggest that online shelf display may affect consumers' shopping decisions (Breugemans, Campo, Gijsbrechts, 2007). According to the latter point of view, the product display order and their positioning relative to other items plays an important role in guiding customer attention and purchase decisions.

Since in the online context there are no space constraints, online assortments are usually larger than those in the brick-and-mortar stores, therefore they require more than one screen to be displayed.

Online shelf management is a major issue for online grocery stores because across-screen product placements may have an impact on purchase choices. Consumers begin their information acquiring and processing in the first-screen page, looking for satisficing solutions, therefore first-screen goods are more likely to be selected.

Companies shift their fight from shelf space to first-screen placement, and consequently retailers should attempt to position on the first-screen initial category all the higher-margin, private label products they want to push.

When consumers find it harder to find and select a product to purchase, they tend to adopt shelf-based heuristics. If it is true that the way products are aggregated and displayed matter in an offline context, the same logic can be applied in the online one. The present study

hypostatizes that different products aggregation can have a different impact on shoppers' perceptions in terms of clearness of the display, usefulness of the information provided, overall satisfaction of the offer and purchase intention. According to the literature, a goal-based categorization helps customers browsing the offer display (Glazer et al., 2020). For the purpose of this study, we analyzed four different types of products displays, namely lifestyle (vegan, vegetarian, gluten-free…), usage occasion (breakfast, main dish, on the go…), nutritional values and price. The selection was based on the variable most used in the retailing landscape and on the main drivers of shoppers' choices (Karanja et al., 2022).


**Methodology and results**

In order to test the most effective display aggregation, we conducted an online survey. The total sample was made of 182 italian respondents (75% female, 52% under 30 years old, 18% shopping in both online and offline stores, 74% not following a specific diet). After collecting personal data, respondents saw all the different stimuli proposed (lifestyle, occasion, nutritional quality and price) and were asked to evaluate the clearness, usefulness, satisfaction and purchase intention on a 7-point Likert scale. Data have been analyzed using SPSS software. For the purpose of the study, the ANOVA-repeated measures was the tool used.
Considering the clearness of the aggregation, significant differences were found between the stimuli (Mlifestyle=4.45, Moccasion=4.68, Mnutrition=4.64, Mprice=4.84; p-value .049). Specifically, using LDS method we found the lifestyle categorization to be less clear than usage occasion and price ones, and the nutritional value less clear than the price information.
Considering the perceived usefulness, we did not find any significant differences (Mlifestyle=4.39, Moccasion=4.61, Mnutrition=4.45, Mprice=4.55, p-value .605).
The overall satisfaction with the aggregation was found to have significant differences among responses (Mlifestyle=4.23, Moccasion=4.46, Mnutrition=4.41, Mprice=4.55, p-value .098). Specifically, respondents claimed themselves to be more satisfied with usage occasion and price aggregations compared to the lifestyle one.
Finally, we found a significant difference for what concern the intention to buy with the aggregation using price having the higher score compared to the other stimuli, (Mlifestyle=4.63, Moccasion=4.48, Mnutrition=4.47, Mprice=4.95, p-value .029).


**General discussion and limitations**

One of the outcomes of changing consumer behaviors during Covid-19 pandemic has been a shift to online grocery shopping. Lockdowns drove many buyers' heightened demand for the online channel, but they also drove new, first-time online shoppers.
First-time online buying has rose and new online buyers of fast-moving consumer goods have emerged across all age cohorts, furthermore, repeat purchase rates among new e-commerce buyers have been strong. Given this situation, it is paramount for retailers to understand how to satisfy new need managing all the levers of the shopper marketing mix.
Results of the present study reveal that, although the online grocery channel is growing in its usage, in Italy is still not much used, because consumers are still very loyal to brick-and-mortar stores.
Second, we found that aggregating products using different variables and pieces of information can lead to a different result in terms on shoppers' perceptions. In fact, we found usage occasion and price categorization to be more effective in developing positive reactions among respondent. One possible explanation is related to the habits: we are used to see these

aggregations on Italian e-commerce websites. Furthermore, the economic situation is forcing customers to pay more attention to the price of the products. Nutritional values, provided by simple indication of good/better/best products was found to be less effective. Despite the importance of selecting healthy products, the sole information regarding the general healthiness of the products is not enough to make customer satisfied. We rather suggest to provide additional information about the nutritional content of food in combination with price and usage occasions information. Since the impact of online food shelves layout remains partially unknowns, retailers could promote the consumption of healthy food by placing such products on top of their e-commences, and they might as well communicate different categories of healthy products thorough advertisement on the side of their pages.

These latest evidence emerging from the paper might be considered as a starting point for further studies related to the impact of the digital shelf on the purchasing behavior of healthy products, and put consumers in front of real choices, which may or may not confirm. these first results.

Limitations of the study are related to the characteristics of the sample (size and demographic aspects) and the development of the stimuli. The study was conducted in a laboratory setting and the participant were not able to brows the web and purchase items. Further research can consider developing trials of ecommerce websites using the categorizations proposed.

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