

## **How environmental concerns affect the relationship between design attributes and purchasing intention**

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### **Abstract**

*The present study investigates the ways through which design attributes are perceived by consumers and to what extent they impact on their purchasing intention within the specific context of the furniture sector. Moreover, by considering the increasing attention of both companies and consumers towards environmental issues, the study also examines the role of consumers’ environmental concern on the relationship between design and purchasing intention. A self-administered questionnaire was completed by 350 consumers during the period from June 2019 to March 2020. Results suggest that the perception of design is mainly related to functional and aesthetic attributes of an object, while purchasing intention is particularly influenced by the symbolic dimension of design, thus revealing the existence of an attitude-behaviour gap among consumers. As soon as environmental issues are concerned, the findings highlight that consumers’ attention towards environmental problems does not affect the purchasing intention of design furniture products. However, it acts as a moderator on the relationship between the functional dimension of design and purchasing intention, that is, when consumers are not very careful about environmental problems, they are less attracted by the symbolic and aesthetic elements of design (of which environmental sustainability can be considered as a part of them). This study contributes to the literature on design management and environmental sustainability by focusing on the specific context of the furniture industry on which the literature is still rather sparse. Interesting implications are derived for both scholars and practitioners.*

**Keywords:** *design, environmental sustainability, purchasing intention, furniture*

### **1. Theoretical background and research questions**

Given its economic, social and ethical impact (Bhamra and Lofthouse, 2016; Ughanwa et al., 2018), the role of design for companies’ competitiveness and survival has been increasingly recognized in recent decades. Prior studies (Noble and Kumar, 2010; Bloch, 2011) demonstrated that a good design, which is consistent with consumers’ needs and expectations, can lead to more satisfying experiences for consumers, thus improving the relationship between them and companies (Gilal et al., 2018). Moreover, a number of scholars investigated the positive impact of design on key outcomes of

consumers' behaviours, including purchasing intention. Among others, Arboleda and Alonso (2014) found that the design awareness, intended as the ability of consumers to recognize the attributes incorporated into an object for instrumental and/or symbolic purposes, can be considered as a valid explanation of their purchasing intention. Hanzaae and Andervazh (2012) demonstrated the existence of a positive relationship between design attributes and consumers' purchasing intention in the context of cosmetics. Similar findings came from other fields, such as luxury brands (Kim and Ko, 2010) and the automotive sector (Hashim et al., 2014). Further research of Homburg and colleagues (2015) provide additional insights after distinguishing the design construct into three constitutive dimensions, namely aesthetic, functional and symbolic. Notably, the aesthetic features of a design product directly influence consumers' evaluations and, consequently, their desire to purchase the products itself (Reimann et al., 2010). The functional attributes are regarded as "a reliable indicator of functional performance" (Hoegg and Alba, 2011, p. 346) which can improve the likelihood of purchase. Finally, the symbolic dimension can affect consumers' behaviour, since individuals may be more likely to buy design products that enable them to maintain and/or elevate their social status and self-identity (Tian et al., 2001). Despite the above evidences, the effects of such dimensions on consumers' behaviours have been scarcely investigated to date (Homburg et al., 2015), while they could be worthy of attention by scholars and managers to improve the overall effectiveness of the design management. Moreover, consumers' daily interactions with various objects can result in subjective perceptions of the design attributes (Luchs and Swan, 2011). This, in turn, can produce different impacts on consumers' attitudes and behaviours. Hence, the need to further investigate this topic emerges, especially concerning the furniture sector on which, to the authors' knowledge, the literature is still sparse and inconclusive.

Understanding how consumers perceive the concept of design related to furniture products might be useful for companies to identify the main factors on which they should focus on for attracting consumers and satisfying their needs.

Based on these gaps, the first research question of this study emerges as follows:

- *RQ1: How do consumers perceive the different dimensions (functional, aesthetic, symbolic) of design and to what extent they impact on their purchasing intentions?*

Besides that, by considering the increasing attention towards environmental issues by consumers (Skogen et al., 2018; Shukla et al., 2019) and the critical role of eco-design practices for companies' innovation and competitiveness (Plouffe et al., 2011), a further interest of this research is about the role of individual concerns towards environmental problems on the relationship between design and purchasing intention. The consumers' attention about environmental issues is changing their lifestyles, leading them to engage in more environmentally responsible behaviours (Morgan et al., 2016). Several studies demonstrated the positive effects of consumers' environmental concerns on their purchasing intention. Xu et al. (2019) and Heo and Muralidharan (2019), for example, pointed out that consumers' awareness about environmental issues directly affect their purchasing intention of environmentally-friendly products. Although these evidences, very little attention has been devoted to the relationship between consumers'

environmental concerns and their behaviour towards design products, especially in the furniture setting. Generally speaking, it is likely to suppose that some design attributes of a product could be a source of concerns for consumers who are environmentally involved, as they tend to be more focused on the quality of an object and the long-term solutions it provides rather than on highly stylised objects with limited durability and use (Beverland, 2011). This might suggest that the higher concern of individuals for environmental problems could negatively affect the purchasing intention of design furniture products. Further considerations could also emerge by considering the different dimensions on which the design construct is based. Arboleda and Alonso (2014) considered environmental aspects as part of the symbolic perspective of an object, since they refer to the relationship between the product and an individual or his context. Accordingly, it is likely to suppose that when consumers are highly aware of environmental problems their purchasing intention is mostly affected by the aesthetic and symbolic attributes of a design object. On the contrary, when the individual attentions towards environmental issues decreases, the purchasing intention of a design product is mostly influenced by the functional dimension of design. All these assumptions, however, require empirical demonstration. Consequently, the second research question of this study rises as follows:

- *RQ2: To what extent consumers' concerns for environmental issues influence their purchasing intention of design furniture products?*

By addressing the RQ2, useful insights will be gained to understand the actual convenience for companies to invest on eco-design practices or other environmental strategies in order to improve their relationships with consumers and to sustain their long-term competitiveness in the furniture sector.

## **2. Methodology**

A quantitative approach has been adopted based on a self-administered questionnaire carried out on a sample of 350 Italian people. The questionnaire consisted of three sections. First, the socio-demographic characteristics of the respondents were explored. Second, information about the perception of design and its influence on consumers' decision-making processes were gathered. Finally, the role of environmental concerns has been investigated. As for the sampling, this study involved a random sample of Italian people. The questionnaire was distributed by using both the online and offline procedure, starting from June 2019 until March 2020. Data were elaborated using the statistical software SPSS (version 23) and WarpPls (version 7.0). After having analysed the socio-demographic characteristics of the respondents, a preliminary Factor Analysis was carried out to investigate the main attributes of design which affect the consumers' perception. Among the several methods available, the Principal Component Analysis (PCA) was selected as it is the most commonly used method (Pallant and Manual, 2010). Hence, a regression analysis was performed to assess whether and how consumers' purchasing intention of design furniture products is affected by their perception of design attributes. Finally, a SEM analysis was further performed to go deep into the relationship between design and purchasing intention by investigating the role of customers' environmental concerns.

### 3. Findings

Based on Kaiser's criterion (Kaiser, 1960) and their salient loadings (Hair et al., 2010), the attributes defining the design concept were grouped into three factors, which were labelled, according to Homburg et al. (2015), as *functional*, *aesthetic* and *symbolic*. They account for the 61,64% of the total variance. *Functional* refers to the usefulness of an object. It relies on the product's resistance and ability to satisfy a functional need in a way that is comfortable and ease for the consumer. *Aesthetic* refers to the aesthetic features of the product, in terms of style, creativity and pleasantness, while *symbolic* concerns the characteristics of the product that can represent a user's identity. The results suggest that the perception of design by consumers is mainly related to the functional and aesthetic attributes of an object, which are the most important in terms of weight and variance explained (24.17% and 21.22%, respectively).

The regression analysis was, therefore, performed to investigate how the different dimensions of design impact on consumers' purchasing intention of design furniture products. Despite the  $R^2$  value indicates a low level of prediction of the model ( $R^2=12.5\%$ ), the independent variables (i.e. three design components emerged from the PCA) are statistically significant ( $p<.0005$ ). The findings reveal that only the symbolic dimension of design is significant in predicting consumers' purchasing intention ( $\beta=0.3$ ;  $p<.000$ ).

Finally, the SEM analysis was developed to go deep into the relationship between design and purchasing intention. The individual concern towards environment was considered as a moderating variable within the above relationship. Results highlight that both the aesthetic ( $\beta=0.10$ ,  $p<0.05$ ) and symbolic dimensions ( $\beta=0.27$ ,  $p<0.05$ ) of design have a positive influence on the consumer's purchasing intention of design furniture objects. Compared to the regression analysis, the SEM procedure underlines the role of the aesthetic dimension together with that of the symbolic one, thus strengthening the importance of intangible features of design to develop a positive intention to purchase a furniture product. The degree of attention of consumers towards environmental issues does not affect the purchasing intention ( $p>0.05$ ). However, it acts as a moderator on the relationship between the functional dimension of design and purchasing intention ( $\beta=-0.13$ ,  $p<0.05$ ). The negative sign of the Beta-value suggests that the higher the attentions towards environmental problems is, the lower the consumers' purchasing intention is affected by the functional attributes of design, concerning the ease of use of a product, its durability, and other related qualities. This means that when consumers are highly involved with environmental concerns, they tend to be less influenced by the functional dimension of design, while the contrary occurs when the individual interest in environmental issues decreases.

### 4. Conclusions and implications

The results confirm that the concept of design can be intended as a three-dimensional concept also within the furniture sector. While on a perceptual level the symbolic dimension is considered to be less important by consumers, on a behavioural level it is the most significant one, which positively affects their purchasing intention. Hence, an attitude-behaviour gap seems to emerge in consumers' perception and actual purchasing behaviours. Furniture companies shouldn't overlook this aspect. They

should focus on all dimensions of design, even though with some distinctions. In particular, they should put more efforts in communicating both the functional and the aesthetic dimension of design to influence the consumers' perception of design attributes; on the other hand, the symbolic component should be better highlighted with the aim to influence consumers' behaviour and purchasing decisions. These considerations require that companies should be able to distinguish different moments of the customer journey of their consumers in order to better address such efforts. Concluding, given the growing attention of consumers to environmental and sustainability, furniture companies should become more aware of the opportunities arising from the implementation of environmentally sustainable strategies, especially with the aim to influence the symbolic dimension of design.

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