INCORPORATION OF EMOTIONAL DESIGN TECHNIQUES INTO THE CERAMIC DEVELOPMENT PROCESS

Agost Torres, María Jesús y Vergara Monedero, Margarita

Department of Mechanical Engineering and Construction,
Universitat Jaume I, Castellón

ABSTRACT

The processes involved in designing and developing new products have had to improve in recent decades in order to respond to new requirements. In current market contexts, in which a host of products compete with one another, there is a demand for ever more rapidly produced innovative, quality designs to satisfy the preferences of customers, which are constantly changing to keep in step with the latest trends. The globalization of markets and the current economic situation oblige companies to add differentiating factors as a key element for sustaining their success.

The incorporation of all the participants who are implicated in the design chain, from the suppliers to the final consumer implies benefits, such as a reduction in the time it takes for a product to reach the market or the possibility of making the most of the specific complementary skills of each member of the chain. Amongst the participants implicated in the design chain, it is worth highlighting the role of the customer, who is changing from being a simple consumer to another collaborator in the creation of value; in other words, consumers are becoming co-designers. Once their requirements in terms of functionality and usability have been met, their needs are primarily based on the emotional benefits and well-being the product can procure. The satisfaction of these new needs may be a key factor in the decision to purchase a product.

The consideration of these aspects is particularly important in the case of sectors such as the ceramic sector, which offer products with a mature technology and launch collections every season, renewing their designs in accordance with the dictates of fashion. Leaving aside the continual functional and technological innovations in the ceramic sector, the fact is that the design of a product is in itself a differentiating element that is highly influenced by fashion. Thus, a detailed analysis of the perceptions elicited in target customers by design and its influence on product preferences is of fundamental interest during the development process. This information is essential so that designers and manufacturers can tailor their products to the right user or customer in each individual case.

This article describes the application of techniques that will enable us to understand the subjective perceptions that designs elicit in potential customers from the preliminary phases of ceramic development. Our aim is to obtain information about the meanings the customer attributes to a product (for example: homely, practical, natural) and the emotions (such as surprise, envy, indignation) its design arouses, and about the correlations between these subjective impressions and product preferences. We can go one step further in our analysis and obtain more key information for the ceramic designer by investigating the links between specific design attributes (such as format, tone, shininess, etc.), the perceptions which are generated and design preferences.

This type of information, which can be obtained by subjective (e.g. Semantic Differential questionnaires) and objective (physiological measurements) techniques, is vital to improving our understanding of the reasons why a design is accepted or not and so it is useful when choosing which product development proposals will have a better chance of success in the marketplace.

New Development: the incorporation of the customer as a collaborator in ceramic development enables us to improve our knowledge of the reasons why a product is accepted or not at an early stage, which can increase the chances of success of products that are being developed.

1. BACKGROUND

Current market conditions require us to develop new designs quickly, although they must be as closely tailored to the needs of customers as possible. Globalization and the current economic situation mean that differentiating factors have to be added as a key element to success. The inclusion of all the participants who are involved in the design chain, from the suppliers to the final consumer, implies benefits, such as a reduction in the time it takes for a product to reach the market or the possibility of making the most of the specific complementary skills of each member of the chain. Amongst the participants who are implicated, it is worth highlighting the role of the customer, who is changing from a simple consumer to another collaborator in the creation of value; in other words, consumers are becoming co-designers. Once their requirements in terms of functionality and usability have been met, their needs are primarily based on the emotional benefits the product can offer.

The satisfaction of these new needs may be key to the decision to purchase a product, especially in sectors like the ceramic sector, which launches new collections

every season and renews its designs in accordance with the dictates of fashion. In addition to the continual functional and technological innovations in ceramic products, the fact is that their design is in itself an element of differentiation.

So a detailed analysis of the perceptions elicited in target customers by design and its influence on preferences is of great interest. This knowledge, during the various stages of product development, is essential so that designers and manufacturers can tailor their products to the right customer in each particular case with a greater likelihood of success. Our objective therefore is to obtain information, during these stages of development, about the meanings the customer attributes to a product (for example: homely, practical, natural) and the emotions (such as surprise, envy, indignation) its design arouses, as well as the correlations between these subjective impressions and product preferences. To do this, by examining the references listed below [1, 2, 3, 4, 5, 6, 7] we have developed the conceptual SISP (subjective impressions in subject–product interaction) model (Fig. 1), which establishes the links between the elements that intervene in the subjective sphere of subject–product interaction [8, 9, 10].

We can go one step further in our analysis and obtain more key information for the ceramic designer by searching for the links between specific design attributes (such as format, tone, shininess, etc.), the perceptions which are generated and design preferences. In the next section we show some of the techniques which were applied to achieve these objectives.

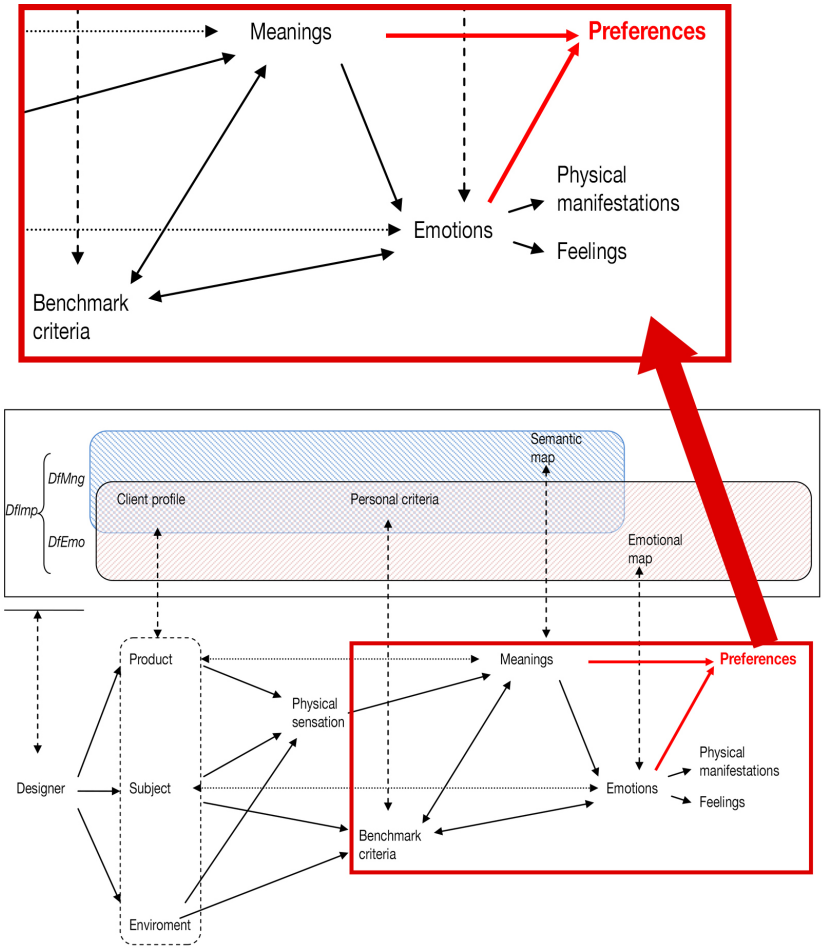

Fig 1. Part of the conceptual design model for subjective impressions in subject–product interaction (SISP).

2. APPLICATION METHODOLOGIES

The links between meanings and emotions produced by ceramic floorings associated with preferences was analysed using the Semantic Differential technique [11]. Sources from the field of personality studies and sociology were also taken into account [12, 13, 14, 15] in order to analyse the influence of personal values and criteria, and the profile of the customer (final user, distributor, architect/interior designer, ceramic designer), on the correlations between subjective impressions and product preferences. Using web-based questionnaires, candidates with different ceramic design profiles were asked to choose from a sample of 19 floorings, depending on their preferences, and to evaluate different aspects using 5-level scales (Fig. 2).

The results enabled us to validate our contention that both meanings and emotions can influence product preference, and that customer profile and benchmark criteria can influence the most important meanings and emotions reflected in our preferences. Other results, such as the meanings and emotions which had the most influence on preferences, show variation, depending on the type of flooring that was analysed (the study was performed using pictures of a neutral living room, in which the only thing that changed was the flooring), so the study would need to be repeated for different types/ uses of floor tiles (for example, kitchens, bathrooms, etc.), or other target customers.

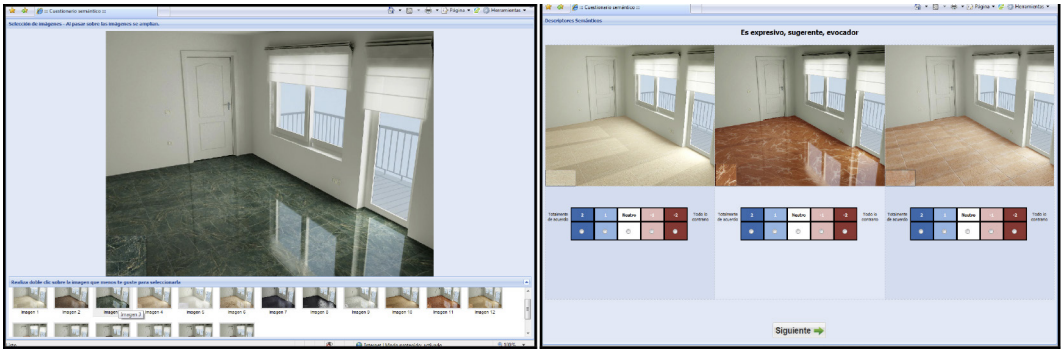

Fig 2. Selection of floorings and questionnaire on product meanings.

The link between specific design attributes and product preferences is probably less stable over time than that of subjective impressions. Even so, it is the most widely documented correlation in the literature [16], largely based on the application of Kansei Engineering principles [17]. To analyse this link we have developed a test that compares preferences in accordance with certain design attributes (format, tone, joint size, shininess) (Fig. 3).

Fig 3. Variations in flooring attributes.

Other related aspects of interest include, for example, the effect of decorative elements on subjective impressions and preferences (Fig. 4) or the analysis of objective data concerning emotions and preferences using physiological measurements.

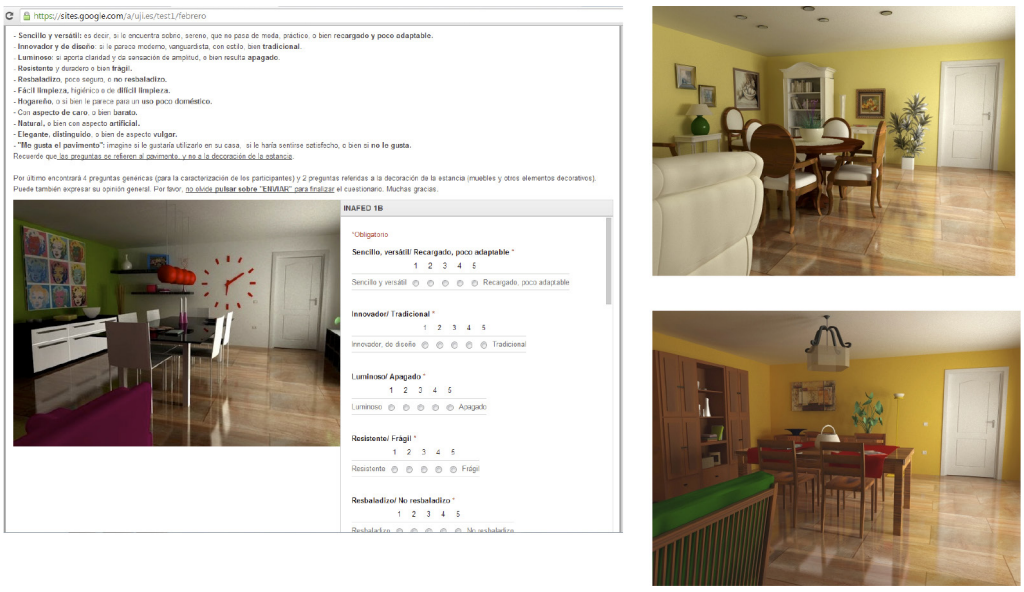

Fig 4. Questionnaire on flooring combined with different furniture and decor.

3. CONCLUSIONS

Nowadays the principles of emotional design inform product development processes. Ceramic design largely depends on the preferences of target customers, who are influenced by current tendencies, personal criteria, subjective factors, etc.

In this article we have presented some of the possible options, which are easy to apply during the various stages of product design, for analysing the links which aspects, such as product meanings and emotions, have with preferences (for example, the influence of the type of customer/distributor, etc.), specific attributes (format, colour, etc.), additional decorative elements, etc. Of course, their use must be adapted in each particular case, depending on what our objectives are.

The information obtained by the application of these techniques can improve our understanding of why a design is accepted or not and, consequently, it is useful when choosing which product development proposals will have a better chance of success in the marketplace.

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