Sensory Analysis of Textiles Products

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KEYWORDS

Sensory Analysis, Touch, Vision, Textile Products.

ABSTRACT

Tactile property, like olfaction and palate, is mentioned generally as a minor sense. This results from the low significance of tactile processes respecting others, such as vision or audition. Tactile and vision perception are issue that remains unknown to the common consumer. These properties are the most important characteristics that affect the quality of textiles and influences the consumer's decision-marking process.

Sensory analysis is a new tool for touch and vision evaluation of a fabric that is based on the determination of the tactile and vision attributes identified by the consumers.

In this research, two different evaluations panels (touch and vision) previously trained, analyzed different textile materials using a predefined scale. A comparison between the evaluations was achieved as well as a discussion about the homogeneity/heterogeneity of the physical properties defined. The results evidence the preferences subjectivity of the consumers.

INTRODUCTION

At the moment of acquiring a textile product is valuated not only the aesthetic but also the comfort in all the aspects that the product can offer. Therefore, the vision and the touch are the most used senses demanding the intervention of specific areas of the brain that analyze and synthesize the information received like colour, texture, flexibility and others. This evaluation involves subjective and objective properties that can be evaluated using psycho or physical tests/instruments in order to find the best agreement between them.

Sensory analysis is a methodology that uses human sensors to characterize, measure, analyze and interpret the reactions of consumer's and the way they are perceived. The sensory apparel does not depended only of the vision, tactile, smell, taste and audition senses; it depends also of the memories, expectations and education. Is not only one sense that acts on the perception of a textile product; the senses are combined and their connections give the final result.

This methodology can be a great tool for the production and design sectors in the search for the development of new products, adapting them to the consumer's vision and touch. It allows also to study the production processes and to change them taking into account the organoleptic properties of the product. This will improve the quality of the products and help the quality control during process production, allowing the increment of a long life product.

So, the application of sensory analysis to textile and clothing industry allows to define the attractively and acceptation of the final product, satisfying the consumer's expectations. A significant portion of the value added to textiles is sensory in nature.

This work will also enable to link perceptual measurements, and quantitative and qualitative data.

Further, wearers' and perceivers' evaluations of fit will be assessed and compared in order to interpret the interplay between visual and tactile sensory responses.

In the third part, the same study with the same fabrics will be done in France and the results compared for the touch study.

PROCEDURE AND RESULTS

In the touch study, were be used 26 different materials: natural and chemical fabrics with different textile structures: woven, knitted fabrics, warp knitted fabrics and nonwovens.
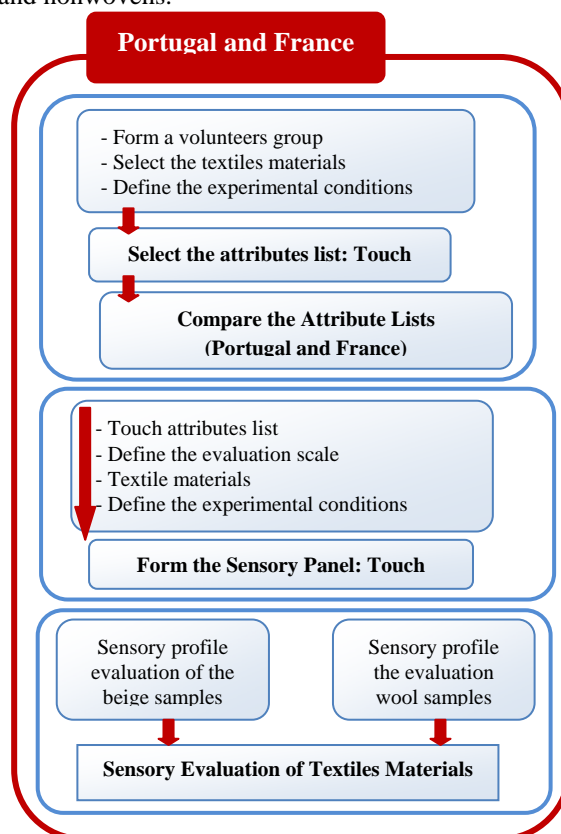

Figure 1: Study plan for touch sensory analysis

The comparative study between Portugal and France describers (Figure 1) shows that of the 15 final touch attribute (Table 1):

- 11 attributes are common in both countries;
- Difference between shape recovery (Portugal) and nervous (France);
- The totally different attributes obtained by both countries were: Grease (France) and Fluffy (Portugal).

Table 1: Comparison attributes France/Portugal

PORTUGAL AND FRANCE	ONLY PORTUGAL	ONLY FRANCE
Cold-Warm Thin-Thick Heavy-light Supple-Rigid Pilous Slippery Stick Granulous Failing Crumple Elastic	Rough-Smooth Sleek-Rugous Shape recovery Fluffy	Soft Grouved Nervous Grasy

In the vision study, were selected 102 samples with different structures. It were be included natural and synthetic fibres with different textiles technologies, knitted fabrics and nonwovens. Besides, the different structures were also integrated also different colour materials, different patterns and different printed materials.

The panel selected was able to decide by unanimity the vision describers, and the statistical tool used was useful at the moment of attributes chosen (Figure 2).
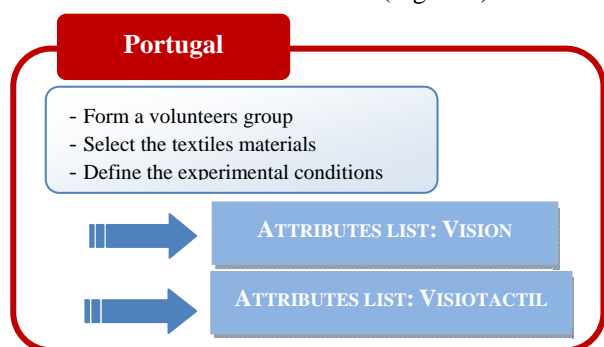

Figure 2: Study plan for vision sensory analysis

Ten vision attributes (Table 2) were defined being 5 of them bipolar. The panel showed how easy was to evaluate and to describe the sensations when the two antagonist terms were considered.

At the end of the study, it is possible conclude that the touch and vision are still subjective parameters of complex evaluation.

Table 2: Final list of 10 attributes for the vision

BRIGHTNESS
COLD- WARM
FLUFFY
PILOUS
ROUGH - SMOOTH
SLEEK - RUGOUS
THIN-THICK
TIGHT - LOOSE STRUCTURE
TRANSPARENT
UNIFORMITY

CONCLUSION

At the end of this study, it can be concluded that the touch is still a subjective parameter of complex evaluation. This research shows a considerable similarity between the preferences of the panel of both countries studied (Portugal/France).

According to these results, it is possible to compare both European consumers and reach a sensory profile well standardized.

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