

Making Use of the Textile Comfort Parameters Knowledge for the Establishment of Value Attributes for the Customers

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Abstract: This article tries to show the meaning knowledge of parameters comfort of product for customer. In the first part contribution defines comfort product like result incidence to many factors and his influence over saleability textile products. Knowledge of comfortable parameters of textile is important at marketing communication and is able to be conducting to increasing measurement satisfaction and loyalty and formation long-time relations customers.

Keywords- parameters of comfort, clothing comfort, sensoric and thermophysiological comfort

1. INTRODUCTION

One of the noticeable features of the present is a constantly more demanding customer, who becomes the base of all entrepreneurial activity due to their specific needs and requirements. This rising customers' demands in the form of the complex use requirement of highly sophisticated and quality products, accompanied by further additional uses when ordering, purchasing, using, operating and maintaining the product. [10]

Expectation and taste of the buyers have been changing rapidly and more and more customers accept only the highest quality in their lives. The buyers don't purchase only with the regard to a function, size or characteristic of a product, but also the concept of quality is included in the term of a product value. [7]The quality is approached as the basic purchase parameter, which influences the perception of the overall value of the product or service. Customers require the product to be:

- In principle perfect
- Economically affordable
- Determined by the customer – as the quality is defined by the customer not by the producer. [1]

It is possible to satisfy the demanding customer in the textile industry by the production of the textiles and clothes of a high added quality i.e. by specific textiles which are highly functional.

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These textiles must provide the wearer with a high level of comfort. This comfort is the main reason why the customer is willing to pay well for the product if the quality is proved by the authorised tests. [2]

2. THE SIGNIFICANCE OF THE CLOTHES AND SPECIAL TEXTILES

Clothing is an integral part of the human life. The primary role of clothes is to protect a body from unstable environment. The human body can be considered as the opened system, which is always in the state of physical, chemical and biological interaction with the surroundings. Clothing is the protective system in which heat and damp permeability occurs. The heat and damp permeability then depends on the construction, design, material and other parameters of clothes. Consequently, clothing supports the thermoregulation of the organism in the cases of self-regulation disability.

Nowadays the production of highly functional textiles, significant by special parameters providing user's comfort especially during sport, has been coming up. [2]

3. THE CLOTHING COMFORT

Comfort is the state of an organism when physiological functions are in balance and when the environment including the clothes does not creates any unpleasant sensations. Subjectively, this feeling is regarded as the well-being when neither the feeling of cold nor heat predominates nor it is possible to stay and work in this condition. [2]

Comfort is possible to divide into the following categories:

- Psychological
- Sensoric
- Thermophysiological
- Pathophysiological

3.1 Psychological comfort

Psychological comfort can be differentiated according to the various aspects:

- Climatic aspect – typical daily clothing should respect thermal-climatic conditions, which are defined geographically
- Economic aspect – includes natural conditions of livelihood, means of production, political system, the technology level etc.
- Historical aspect – people prefer the product made of natural materials, products simulating the nature, the products of the natural scent
- Social aspect - age, education, qualification, social class and status in this class
- Cultural aspect – customs, traditions, ceremonies, religions
- Group and individual aspects belong to the textile design branch and involve fashion influences, style, colour and shine, trends and personal preferences. [2]

3.2 Sensoric comfort

Sensoric comfort consists of perceptions and feelings of a person when the skin touches directly the first layer of the clothes. Feelings resulting from the contact of the skin with textile can be pleasant, like the feeling of softness, drape or on the contrary feelings can be unpleasant, such as pressure, the feeling of dampness, itching, scratching, etc. [2]. Sensoric comfort can be divided into comfort of wearing and to touch.

The wearing clothes comfort includes the textile ability to absorb and transport gaseous or liquid dampness with the impact on its constant features. **Touch** is the subjective condition, based on the perception by means of fingers and a palm. When simplified, the touch can be characterised by smoothness, toughness, voluminosity and thermally-contact perception.

3.3 Thermophysiological comfort

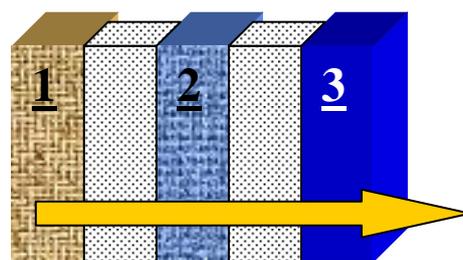
Thermophysiological comfort is the state of the human organism in which thermophysiological functions are optimal. This state is subjectively perceived as the thermal comfort when neither sweating nor the feeling of cold occurs. To the comfort of modern, especially sport textiles belongs the feeling of warmth and dry skin. In case of cheap clothes the dampness concentrates in the textiles and worsens its thermal isolation, which creates an unpleasant feeling of dampness as its thermal capacity and friction are increasing.

Thermophysiological comfort of textiles can be characterised by two basic parameters: thermal and evaporative resistance. Evaporative resistance characterizes thermal effects perceivable by the skin and produced as a result of sweat transpiration. The total thermal resistance of clothes consists of clothes' own and boundary layer's thermal resistance. [2]

During the physical exertion the body regulates its inner temperature by the increase of sweating. When using classical natural materials (cotton, viscose, wool), which are liquid-absorbing and the dampness is bound directly in

the fibre, sweat is accumulated mainly in the underclothes. The feeling of dampness then appears in the following dwell time, not only the clothes start to chill and this becomes uncomfortable from the aspect of clothes comfort exasperation and mental well-being, but also there is a risk of getting a cold.

While using the clothes made of functional textile materials, accomplishing the comfort parameters, sweat is gradually transported from the skin. In order this system to function, the transport of the sweat from the skin must be insured by the layers of clothes. The fastest transport of dampness must be supplied by the material of underclothes. (Fig. 1.)



The layer 1

- thermo underclothes and socks
 - microclima – transports sweat from the skin

The layer 2

- winter thermo underclothes or fleece sweater
 - isolation – maintains the body temperature

The layer 3

- outwear (coat from parapermeable material)
 - protection against outer effects

Fig. 1: System of functional clothes

Material used for the functional underclothes and socks is mostly knits made of fibres of the very low absorption – polypropylene or suitable modifications of polyester, textiles which are able to transport dampness from the skin to other clothes layers. Underclothes must abut against the body well, only in this case the function is fully secured. **Klimatex, Moira and Coolmax** belong to the most well-known materials of this first layer.

The function of the thermoinsulating materials, i.e. the second layer, is to protect the user from cold and heat of radiation. As the best isolant is air, it is necessary to use such fabric materials and textiles which are able to hold the most air in their inner structure, e.g. **Polarsoft Micro, Sensor**.

Clothes made of waterproof and parapermeable textiles form the third outer layer of the clothing system for unfavourable wind conditions, e.g. **Nordblanc, Hannah**.

The product which has higher thermo isolating parameters and is designed for the most demanding users

connects high esthetic value with the functional features comfort.

3.4. Pathophysiological comfort

The feeling of comfort while wearing clothing textiles is influenced also by the activity of pathophysiological forces such as the activity of chemical substances contained in the material, from which the clothes are made of and microorganisms occurred on the human skin. The action of pathophysiological influences depends on the resistivity of the human (human skin) against the action of chemicals in textiles and on the condition of the growth of microorganism cultures which occur in the microclima restricted by the surface of the human body and textiles.

4. VALUE PARAMETRES FOR THE CUSTOMER

Nowadays the value for a customer is a very well-known and wide spread term. However, the uniform definition does not exist. In literature, the value is described as the relation between “the satisfaction of the need and the sources used for its achievement,” [5] as “satisfaction of needs/ sources used “or “the extent of the use / total costs.” [6]. The most frequently the value for a customer (in literature mentioned as so called “market added value”) is perceived as the difference between the set of the total uses obtained by the purchase and the sum of sources (or costs, both financial and non-financial, psychological, energetical, etc.) put in for obtaining, using, liquidation of the certain products. Therefore, the value is a **very subjective and personal concept** which is a result of the personal comparison of what the customer is going to obtain and what he has to do and sacrifice for it. It is based on the customer’s perception.

The value of the product makes the right combination of a quality, new services, a price and other attributes corresponding with the target market. [7] As regards to textiles designed for leisure time and doing sports, they are the comfort parameters what creates the value of a product, such as parapermeability, waterproofing, etc. It is a matter of the total complex of characteristics and experience which depend on the perception of the individual customers. [9] It is important to interpret and make use of these parameters in the right way.

4.1 The measurement of the comfort characteristics

Until recently the evaluation of comfort was possible to be done only subjectively. Nowadays methods and devices, conditioning the product development and marketing, for textile comfort measurement already exist. The scientists of the Technical University in Liberec have been dealing with the measurement of the comfort characteristics so that the customer **can get the information needed about the characteristics of the product which they have been purchasing.** Fast and non-destructive measurement of Para

permeability and thermal resistance of the sport clothes enables the special portable machine PERMETEST, which was patented in 1990 by the professor Luboš Hes from the Textile faculty of Technical University in Liberec. It is probably the only machine in the market which enables non-destructive testing of evaporative and thermal resistance of clothes. Its main advantage is that within 2-3 minutes manages to do the reliable testing without any damage of clothes.

Measurement is based on the evaluation of the level of the thermal flow passing through the surface of the measuring machine, so called Skin model. The porous measuring surface of the machine really in certain sense simulates the human skin. By its moisturising the process of cooling when sweating is simulated. Dampness of the porous layer is changed into the vapour which goes through the textile. The evaporative thermal flow is measured by the sensor. Its value is directly proportional to parapermeability of the textile measured or indirectly proportional to its evaporative resistance. Besides these two values the machine also measures the thermal resistance.

The relative parapermeability is measured in percentages. Thus the free skin surface represents 100 % permeability and completely impermeable means 0 %. When it comes to the autumn and winter jackets, different values of permissible permeability are valid, which is given by the dependency of the sweat production on the surrounding temperature. The product of a high quality the winter jacket of a parapermeability higher than 6-8 per cent and the autumn jacket with lower thermal isolation and of a parapermeability between 15 – 30 per cent.

The product of so called parapermeability and thermal resistance creates the quality index of the jackets. This index can be then compared with the price. [11]

4.2 The use of the knowledge of the comfort parameters

The device, which is made by a Czech firm, has already been installed in 22 countries in the world, mainly by big producers of textiles and clothes. Except of Europe it has been used also in Australia, Brazil and the USA. The devices have been used also for scientific purposes, during the development of new products and for certification.

According to the marketing specialists this device could help when revealing non-quality goods from Asia and also is important for the business firms which buy Asian semi products. This means of measurement is of a big importance in production and development of the membrane. The textile evaluation department of the Textile faculty has been conducting the service measurement of the thermal comfort for several producers of sports and protective clothes. The detailed analyses include also the measurement of comfort parameters when damp, which the mentioned device enables easily in a short time of measurement. The main tasks are to determine the thermal comfort parameters of the products and to define their commercially admissible limits.

5. CONCLUSION

Non-destructive testing of relative permeability of water steam of clothes is a significant contribution to obtain the overview of the goods offered in the market. It could be conducive to reveal the counterfeits of the famous brands, whose feature is almost no permeability. The assortment of clothes for leisure time and sport available in our market is huge both produced by Czech or abroad in the large scale of price spectrum. Choosing the right product is not easy and the knowledge of comfort parameters can help customers when making the choice and decision about the purchase. The device PERMETEST could be installed also in other stores with sports equipment. Measurement is fast and persuasive and the customer could see immediately what is sold and the fulfilment of their imaginations about the offered product is guaranteed. [3]

The customer chooses the stimuli from the surroundings on the basis of reciprocal influence of expectations, motivation and the stimulus.

Marketing targeted at the perception of the value recommends the firms to focus on the perceptible value of the product and also on the need which has been satisfying. It is obvious that revealed and used higher value for a customer leads to the increase of their satisfaction and loyalty. The market added value is directly depended mostly on the idea which could be also measurement of comfort parameters in the shop. The person who can find new and innovative thoughts and ideas can offer some bonus to their customers. [8]

If the firm manages to create complex extra market added value of the offer, higher than the one of the competition, the company will get so called integrated competition advantage, which is the warranty of the preference of the company offer by the target consumers.

[4] It is then necessary to construct clothes in such way that their ability to transport the heat, liquid and gas dampness and sometimes even of the air ensure the optimal values when wearing.

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