

Magdalena Grębosz,
Barbara Wrońska

Lodz University of Technology,
Faculty of Organization and Management
Department of European Integration
and International Marketing
ul. Żeromskiego 116 90-924 Łódź, Poland
e-mail: magdalena.grebosz@p.lodz.pl

Sensory Impact on the Purchase of Textile Products

Abstract

Due to increasing competition and market saturation, textile companies try to find new solutions to attract customers. Companies propose new materials, reorganize distribution strategies and develop interactive communication. Producers, distributors and retailers of textile products have also started to implement alternative strategies like sensory strategy. However, the study showed that the influence of the senses on the purchase behaviour of the consumer and their perception of textile products is not high. As was proved in the study, men and women do not perceive and react equally to sensory cues in the choice and evaluation of textile products. Contrary to female respondents, male purchase behaviour was not explained by either emotional or cognitive variables. Therefore it is suggested that the design and implementation of the sensory strategy should be more focused on the female rather than male target group due to their higher sensitivity to sensory stimuli.

Key words: textile product, sense, customer behaviour, sensory marketing.

solutions that may help businesses gain technological advantage, for example, in antibacterial and bacteriostatic fabrics [2], whereas others tend to develop relationships with customers. The companies can also use some experimental solutions proposed by sensory marketing.

The main objective of this study is to verify the influence of the senses on the purchase behaviour of consumer as well as their perception of textile products.

■ Conceptual background

The human senses have long been ignored in marketing, despite our awareness of their great significance. Today sensory marketing is distinguished from mass and relationship marketing by its origin in the five human senses [3]. According to Lindstrom [4], the more sensory stimuli activated in the brand building process, the greater the number of sensory memories “switched on”. The higher the number, the stronger the relation between the brand and consumer. As an example of such a perfect relationship, Lindstrom gives the rituals of faith during which all five senses are activated – sight might be leveraged through candles flickering, sound presented through choir songs, the ubiquitous smell of incense etc.

Scientific research focused on the interaction of various senses is relatively new as one of the first studies treating this topic was published by Mattila and Wirtz in 2001 [5] followed, among others, by Spangenberg, Grohmann & Sprott in 2003 [6] and Krishna, Elder & Caldera in 2010 [7]. Although those studies examined sensory configurations, there

were only two different senses included in each of the researches. Mattila and Wirtz [5] investigated the effects of scent and music congruency on evaluations of a store environment and customer behaviour. Their findings showed that the shopping experience was more positively evaluated when the arousal levels of the background music and ambient scent were matched in such a way that a relaxing smell together with slower music and a refreshing, stimulating scent with faster music resulted in much better assessment of the surroundings than when the arousal properties of smell and scent were mixed. Another study focusing on the interaction between olfactory and aural impulses was undertaken by Spangenberg *et al.* [6]. This time the main characteristic investigated was not the arousal level but the fitness of the stimuli to the occasion. Participants in the study were exposed to four different conditions in an artificial shopping environment. The outcome of the experiment demonstrated that the congruency of stimuli resulted in better appraisals for all independent variables. When the stimuli did not match, the intentions were not affected or presented worse ratings. The studies mentioned above showed that when the characteristics of two senses matched (arousal levels and fitness to the occasion), the results were better than those obtained in the presence of only one sensory cue. Not only pleasure and arousal seem to impact consumer behaviour. In the study presented by Kellaris and Altsech in 1992 [8], the gender of the participants had a moderating effect on the duration of the piece of music perceived. The authors suggested that it might be due to the fact that the sound sensitivity is different for men and women. In the majority of cases,

■ Introduction

According to Kotler and Armstrong [1], today companies have to manage customers relationships profitably. However, the competitive environment and growing expectations of customers force companies to search for new methods and tools of customer value creation. The principles and models of traditional marketing have become insufficient and should be completed by new experimental solutions. On the textile market companies can develop technologies, introduce new products, propose an attractive distribution strategy and use new tools of communication.

Some textile companies attempt to create competitive advantage by introducing more advanced technologies like nanotechnology, which is providing

females present a more developed sense of smell and their sensitivity to olfactory stimuli is often higher than that of males. Another study that revealed differences in sense perception was that published in 2010 by Krishna *et al.* [7] exploring the influence of smell on touch, namely the texture and temperature of an object. Two aromas that were different in terms of their gender dimension but equal when comparing their pleasantness, likeability and familiarity were selected for the experiment. The pre-test in the study confirmed that smooth paper is perceived as more feminine while rough can be considered as masculine. Krishna *et al.* found that when the smell matched the haptic perception (e.g. feminine smell and smooth paper, masculine odour and rough paper) the participants rated the aroma more positively than when there was no gender congruency between stimuli. Therefore it might be suggested that gender may serve as a possible moderator of the impact of environmental stimuli on human behaviour.

■ Research concept

Textile products are bought by both males and females, at any age, and are often purchased on impulse [9]. Taking into account that impulsive shopping may be the result of a feeling of happiness or feeling good [10], it was suggested that sensory marketing might be of paramount importance to retailers as sensory stimuli were found to have an impact on the consumer's states of feeling and purchase behaviours.

Thus the following hypotheses are set forth:

- **Hypothesis 1:** The more senses are activated during shopping for textile products, the more prone is the consumer to express approach behaviours by showing higher buying intentions.
- **Hypothesis 2:** The more senses are activated during shopping for textile products, the better are the evaluations of the products.
- **Hypothesis 3:** Males and females respond to sensory stimuli in a different way.

■ Research methodology

The experiments were realised in May 2011 involving a group of students of the Department of Management. A total of 218 students participated in the study,

were divided into 8 groups, each of which were exposed to a different combination of sensory cues. Consequently the participants of the first group were only allowed to observe the products, while members of the 8th group observed and touched the textile products while there was a background music playing and an ambient scent diffused in the experimental room (*Table 1*).

The respondents were randomly selected from the students, 46% of which were female and 54% male (*Table 2*).

The experiments were realised in prepared rooms. On the table at the front of the room eight textile products (clothing, footwear) of fashion brands, four from a female collection and four from a male one, were exposed. The tags on the objects were covered in order to prevent respondents from being prompted in their responses by the brand name. In order to keep the environment as similar as possible to the retailing environment, the number of participants entering the experimental room was not limited, as there is no customer density limit in shops. Upon entering the room, participants were given a questionnaire with all instructions concerning the experiment and questions to be answered. In questionnaire 3 closed-end questions with a rating scale (from 1 to 7), 2 closed-end dichotomous questions and one open-end question were used.

The methodology of the research as well as its results were discussed with Professor Marta Mas Machuca from the Department of Management, Universitat Politècnica de Catalunya (Spain).

Table 1. Distribution of sensory stimuli within experimental groups; Own work.

Group No.	Total number of senses involved	Senses			
		Sight	Sound	Touch	Smell
1	1	x			
2	2	x	x		
3	2	x		x	
4	2	x			x
5	3	x		x	x
6	3	x	x	x	
7	3	x	x		x
8	4	x	x	x	x

Table 2. Gender distribution among groups; Own work.

Gender	Group Number							
	1	2	3	4	5	6	7	8
Male	13	15	16	13	16	12	17	16
Female	13	14	12	13	9	11	15	13

■ Analysis of the results of empirical research and hypothesis testing

To examine if the sensory cues were really impacting the participants of the study, hypothesis testing was conducted within the groups for each gender as well as for male and female answers.

Purchase intention of textile products

The analysis of the results helps to determine the influence of senses on the purchase behaviour of the consumer as well as on their perception of textile products. *Figure 1* (see page 10) presents the intention to purchase the textile product by respondents from different groups.

It can be observed that there is no clear growing or decreasing tendency for the respondents' answers. Men's highest purchase intention (54%) was observed in the 4th group (sight, smell), while the lowest was in the 1st (sight), 3rd (sight, touch) and 5th (sight, touch, smell), with 38% of participants prone to buy the textile product. On the other hand, female results occurred to be much more varying, with the difference between the best (6th group: sight, sound and touch) and worst (8th group: all four senses) result equal to 41% compared to a 16% difference for males.

Hypothesis 1 predicted that more senses are activated during shopping for textile products, and the consumer is more prone to express approach behaviours by showing higher buying intentions. The results of the 6th experimental group (sight, sound, touch) appeared to be considerable higher than those registered

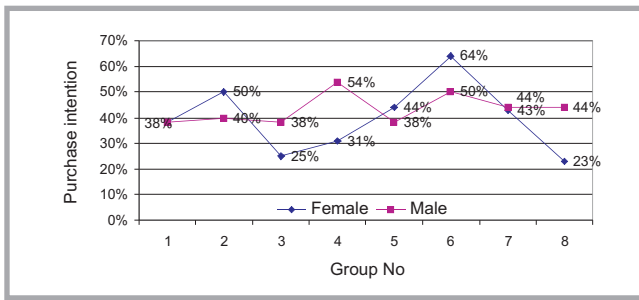


Figure 1. Purchase intention across experimental groups; Own work.

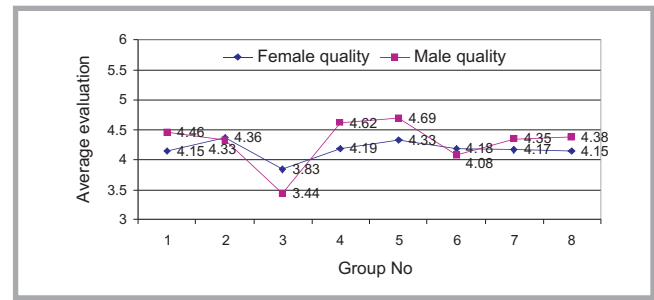


Figure 2. Perceived quality of textile products across experimental groups; Own work.

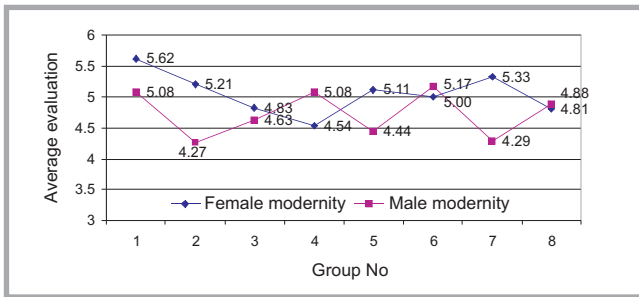


Figure 3. Perceived modernity of textile products across experimental groups; Own work.

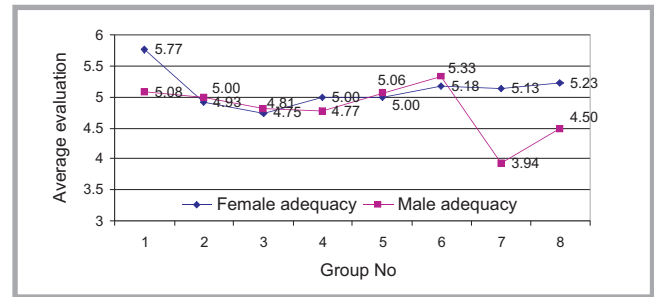


Figure 4. Perceived adequacy of textile products across experimental groups; Own work.

for groups number 3 (sight, touch) and 8 (sight, sound, touch, smell). The difference between the 6th and 4th group (sight, smell) almost reached significance. On the basis of these results (**Figure 1**), it can be deduced that increasing the number of sensory cues applied in shopping for textile products does not contribute to a rise in purchase intentions. It seems that the combination of adequate cues rather than their number is what matters to consumers. Therefore hypothesis 1 is rejected.

Evaluation of cognitive variables of textile products

Figures 2 - 4 present the average value of cognitive variables measured in the study: perceived quality, modernity and adequacy of products for both men and women for all eight experimental groups. The worst quality ratings for both men and women were obtained in the 3rd group with visual and tactile sensory cues activated. In other groups where participants were allowed to touch the objects (5th, 6th, 8th) the ratings are higher, which may imply that sensory cues may counterbalance the low quality of the clothing products (**Figure 2**).

From a statistical point of view, there is no difference between female and male evaluations of the quality of clothing items. The 5th group (sight, touch, smell) is the only one in which a difference

could be observed if the significance level were a little bit higher ($p = 0.0794$). There were no significant effects that emerged from the female evaluations. In statistical terms, women perceived the quality of the textile products equally in all the groups. Men's perception of the textile products' quality occurred to be more influenced by the sensory cues than the women's. Their evaluation of the products' quality was considerably lower in the 3rd group (sight, touch) than in the rest of them. The sole equal relationship ($p = 0.0754$) occurred with the 6th group (sight, sound, touch).

There is no pattern for the modernity ratings among the groups for both men and women, with results varying among groups and genders (**Figure 3**). The adequacy assessment is at the same level for groups 2 to 6, with higher ratings given by women in groups 1, 7 and 8 (**Figure 4**).

The difference between the modernity perception of men and women occurred to be significant in the 2nd (sight, sound) and 7th (sight, sound, smell) experimental groups. In both of them women perceived the textile products' modernity higher than male respondents. Analysing each gender separately, it was surprisingly found that females identified the clothing as the most modern in the 1st group, in which only its observation was permitted, being significantly higher than

the modernity evaluation in the last (8th) group, in which all four senses were activated. The analysis of male evaluations suggests that the results could be grouped into two streams - the first one with groups 1 (sight), 4 (sight, smell) and 6 (sight, sound, touch), showing better modernity evaluations than groups 2 (sight, sound), 5 (sight, touch, smell) and 7 (sight, sound, smell).

The adequacy of products perceived was another cognitive variable to differ across gender, with considerable differences observed in the 2nd (sight, sound) and 7th experimental groups (sight, sound, smell), one again with female evaluations being higher than those of male respondents. Differences within the 1st ($p = 0.0562$) and 8th ($p = 0.555$) experimental groups did not approach significance, despite being very close to a significance level of 5%. Similar to the modernity variable, the only meaningful differences in the female perception of the textile products' adequacy occurred to be within the 1st experimental group, in which the products were found by women to fit the shopping environment better than in the 2nd, 3rd and 4th groups (all with 2 sensory cues activated). The experimental group that occurred to be the worst evaluated by male participants was the 7th, with the visual, aural and olfactory sensory cue altered.

Summing up, on the basis of the analysis of research results (*Figure 2 - 4*), it is clearly visible that the number of sensory cues applied during shopping for textile products does not influence evaluations of the quality, modernity and adequacy of products. In some cases, product evaluation occurs to be better if only visual stimulus is present than when more than 1 cue is activated. Therefore hypothesis 2 is rejected.

Table 4 shows the regression of cognitive variables: the quality, modernity and adequacy of objects that were evaluated, as predictors of the purchase intention. Once again, the model is not significant for men, while for female respondents it accounts for almost 13% of the variance in predicting purchase willingness. Among all the cognitive variables, only adequacy turned out to be a significant forecaster of the intention to purchase. What is curious, and should be thoroughly examined in further studies, is the fact that the quality of objects did not influence the purchase intentions of the respondents.

In all of the combinations of variables, there was no meaningful model that would explain the shopping behaviour of men, while the combinations for female respondents all give significant results. It can be noticed that within the experimental groups, male respondents did not differ in their willingness to buy the product, whereas female participants occurred to be more influenced by the sensory cues, showing greater variability in their purchase intentions. Taking into account the bigger impact of sensory stimuli on the purchase intention of women than on that of men (*Table 3*), hypothesis 3, stating that men and women respond differently to sensory stimuli, is confirmed.

■ Research limitations

It is important to delimit the contributions of this research properly. The recommendations in this study are set forth, of course, with a caveat as to the limitations of the sample. The respondent groups were only comprised of students, therefore relatively young consumers. Although this condition ensures the homogeneity of the sample, it creates an obstacle in generalising the results. To provide a more comprehensive picture of the effects of senses on purchase behaviour, further research should examine the influence of sensorial configurations on a

Table 3. Beta coefficients for the cognitive variables used to predict purchase intention; Own work.

Factor	Purchase intention		
	All	Female	Male
Quality	0.013 (0.037)	0.004 (0.055)	0.028 (0.050)
Modernity	0.016 (0.031)	0.014 (0.046)	0.007 (0.042)
Adequacy	0.067** (0.029)	0.15** (0.045)	0.013 (0.039)
Multiple R	0.201	0.391	0.083
Adjusted R ²	0.027	0.127	-0.019
F	2.994	5.785	0.266
Significance	0.032	0.001	0.850

larger number of respondents, if possible in real retail settings. Moreover the scent and music selected for the experiment were limited in nature, as only one scent of certain characteristics and one kind of music were applied. Olfactory and aural cues, other than those used (lavender smell and pop-rock music), may operate differently in their ability to enhance purchase behaviours and influence emotional states.

■ Conclusions

Today the situation of many textile producers from Eastern Europe is difficult. Competition in this sector is not easy taking into account the development of the Chinese and Indian textile industry. "According to the recommendation of the European Commission, one of the methods to remain competitive against low prices offered by China or India is to offer innovative products of considerably better quality" [11]. Companies also try to develop relationships with retailers and to affect customers' senses using experimental solutions proposed by sensory marketing.

Krishna defines sensory marketing as "marketing that engages the consumers' senses and affects their behaviors" [12]. Today researchers and marketers are discussing how sensory aspects of products, i.e., the touch, taste, smell, sound and look of products, affect customers' emotions, perceptions, preferences, choices, and purchase behaviours.

This study showed that the influence of senses on the purchase behaviour of the consumer as well as on their perception of textile products is not high. The evaluation of purchase intention obtained when three or four senses were applied was worse or not significantly higher

than the rest. In consequence, hypothesis 1 - predicting that more senses are activated during shopping for textile products, and the consumer is more prone to express approach behaviours by showing higher buying intentions - was rejected.

The results of the data analysis showed that women perceived the quality of the textile products equally in all the groups, while men's perception was considerably lower in the 3rd one (sight, touch) than in the rest. Women perceived the textile products most adequately in the 1st group (sight), while men assessed the products' adequacy the worst in the 7th group (sight, sound, smell). No differences were found for men's intention to purchase the product across the experimental groups. Women showed greater variability in their purchase intentions - the 6th group (sight, sound, touch) appeared to be considerably more prone to buy the textile product than those registered in the 3rd (sight, touch) and 8th (sight, sound, touch, smell).

Therefore the findings of the study allow to conclude that a higher number of sensory cues activated during the retailing experience does not necessarily positively influence the approach behaviour of consumers and their evaluations of textile products. In many of the variables analysed, the results obtained in the 7th and 8th experimental groups, in which three (sight, sound, smell) and four senses (sight, sound, smell and touch) were applied, were the worst, or not significantly higher than the rest. Summing up, on the basis of the analysis of the research results it is clearly visible that the number of sensory cues applied during shopping for textile products does not influence evaluations of their quality, modernity and adequacy, and consequently hypothesis 2 was rejected.

As was proven in the study, men and women do not perceive and do not equally react to sensory cues. In consequence, hypothesis 3, stating that men and women respond differently to sensory stimuli, was confirmed. Contrary to female respondents, it was shown that male purchase behaviour was not explained by either emotional or cognitive variables. Therefore it is suggested that for those managers who implement sensory strategy, its design should be more focused on the female rather than male target group due to their higher sensitivity to sensory stimuli.



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14th International Triennial of Tapestry 2013, Łódź, Poland

The Programming Board of the 14th International Triennial of Tapestry invited outstanding specialists in textile art from several countries to take part as national consultants with the aim of

selecting the best candidates fulfilling the criteria to participate in the triennial. Independently on the basis of the rich archive at the disposal of the Central Museum of Textiles and a wide review of artistic events. The Programming Board additionally invited individual artists from 11 countries, as well as 20 from Poland.

In the end 134 artists from the following 50 countries will participate in the triennial: Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Chile, China, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Island, Israel, Japan, Kazakhstan, Kenya, Latvia, Lithuania, Mexico, Norway, Peru, Poland, Portugal, Puerto Rico, Romania, Russia, Slovakia, Slovenia, South Korea, Spain, Sweden, Taiwan, The Netherlands, Turkey, Ukraine, Uruguay, USA, Venezuela.

Thanks to the cooperation with national consultants and Ms. Pilar Tobon, the president of the World Textile Art Association, it was possible to increase the number of participants from South and Middle America. For the first time artists from Costa Rica and Puerto Rico will participate.

Beginning from January and leading up to December 2013, which means in the year of the 14th edition of the Triennial, over 80 events will be presented at different sites in Poland. Nine of them are great cyclic events, also of an international and all-Polish character, taking place mainly at the greatest textile art centres, such as in the towns or Gdańsk Pomerania and Lower Silesia and, of course, in Łódź. The great Festival of Textile Art in Cracow, for years cooperating with our triennial, will not take place this year only due to the financial difficulties. The same financial reason caused that the number of associated events decreased this year from about 100 commonly taking place in the triennial year, down to 80. The economic crisis has begun to be visible.

The Programming Board invited well known experts of the highest artistic position and experience to take part as members of the International Jury of the 14th International Triennial, and below are listed those who finally agreed to their participation in this honorable, but also responsible and industrious assembly: Ewa Latkowska Żychska (Poland), Professor of the Strzemiński Academy of Fine Art in Łódź, Carol Russel (USA) – artist, art teacher and art critic, Pilar Tobon (Venezuela), President of the World Textile Art Association, initiator of the project Women in Textile Art, and Norbert Zawisza (Poland) Director of the Central Museum of Textiles in Łódź.

The International Triennial in Łódź has for years been traditionally associated with the Polish Exhibition of Tapestry (this year already its 12th edition) and the Polish Exhibition of Miniature Textiles, celebrating its 10th anniversary, both organised by the Central Museum of Textiles. At the end of 2012, the Programming Board established a separate selection Jury for these events, and in January 2013 the participants of both exhibitions were selected. At the 12th Polish Exhibition of Tapestry 70 artists will participate, whereas at the 10th Polish Exhibition of Miniature Textiles there were 108 artists.

The Department of Tapestry at the Strzemiński Academy of Fine Art together with the Central Museum of Textiles have initiated a new idea – the organisation of an international exhibition 'The Young Textile Art Triennial'. This event is also commonly called 'Tapestry Triennial of the Youth'. This year's edition is designated for students and graduates of 2012 of university art schools. Participants from the following countries are provided: Bulgaria, China, Czech Republic, Estonia, Finland, France, Germany, Great Britain, Hungary, Poland, Romania, Slovakia and the USA. The works presented at the exhibition, concerning a wide spectrum of textile art, will be evaluated by a separate jury established by the Programming Board of the 14th International Triennial of Tapestry.

The opening ceremonies of the 14th International Triennial of Tapestry, as well as of the 18 international, Polish collective and individual exhibitions associated with the Triennial will be held in Łódź on 6-8 May 2013 (see also page 117).

Jolanta Piwońska
Secretary of the Programming Board