THE INFLUENCE OF BRAND ON CONSUMER QUALITY ASSESSMENT OF CLOTHES: A CASE STUDY OF THE POLISH MARKET

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Abstract:

This article presents the results of research carried out based on consumer assessment of the quality of clothing using sensory analysis. The study aimed to determine the role of the brand and information about it in assessing product quality and identify the quality parameters that distinguish brands of a similar quality level. An attempt was also made to classify popular brands of clothing available on the Polish market based on the parameters that determine their quality. A significant impact of the brand name on the sensory assessment of clothes' quality has been reported. The study has shown that assessors attribute higher rating values to quality features when they know the product brand; moreover, the brand and its information shortens the assessment time, which may suggest that it simplifies and facilitates consumers' decision-making process. The result analysis has led to the identification of three groups of the factors determining the quality of clothing products: fabric composition, workmanship, and all other variables. It has also led to the separation of three clusters, characterized by different levels of product quality, for which sets of features distinguishing a given category were determined.

Keywords:

Quality assessment, brand, clothes, sensory evaluation, consumer

1. Introduction

Product quality is one of the most crucial factors determining consumer choices. Studies on the behavior of Polish consumers concerning clothing products indicate that, next to price, quality plays a key role in consumers’ decision-making process [1–4].

When studying the quality of clothing, it should be borne in mind that it is perceived by consumers in many different ways and, most often, has a multidimensional nature. The literature of the subject shows that consumers perceive clothing quality by considering both inherent properties (intrinsic/physical) such as fabrics used, type and structure of materials, design/style, construction details, workmanship in sewing and extrinsic attributes as brand name, suitability to individual preference and fashionability or trendiness, price, and store image [5–8]. Kim et al., on the example of Japan and China, emphasized cultural differences in choosing dominant quality properties of clothes [9]. According to Hines and Swinker, the factors that control the purchasing process depend on the level of consumer knowledge about product properties [10]. In general, educated consumers are more aware of the role of quality-deciding factors, and therefore assign greater value to inherent properties. According to the Hines and Swinker, extrinsic attributes are factors of secondary importance. Similar observations on the marketing advantages of strong brands can be found in the study of Hoeffler and Keller [11].

According to research conducted by the aforementioned authors, consumers who do not have sufficient knowledge about products are more likely to be influenced by the brand when making their purchasing choices. By deciding to buy a product of a well-known brand, they simply intend to minimize the risk of dissatisfaction. In turn, consumers who are familiar with a particular brand usually have confidence in it, arising from the conviction that high-quality products are sold under a given brand name [12]. Such consumers are also prepared to pay more for a branded product [13]. The relationship between quality and brand is also emphasized by Maran et al. [14]. By analyzing the relationship between consumer perception and satisfaction, the authors pointed to the quality factor as a decisive attribute taken into account in assessing satisfaction with a branded product.

Although there are many studies on the role of the brand in purchasing behavior and the perception of product quality, it is difficult to find any examples of papers that would investigate the actual relationship between the brand name and the quality level of the products sold under it. Research in this area, involving retail goods, is very limited. It usually centers on brand assessment and its perception through various features associated with the brand [15–18].

This study aimed to determine the role of the brand and information about it in assessing product quality and identify the quality parameters that distinguish brands with a similar level of quality. An attempt was also made to classify popular clothing brands available on the Polish market, based on

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the parameters determining their quality. For the study, the following three research hypotheses were adopted:

H1: The product information on the label has a significant impact on the consumer assessment of the level of quality of clothes.

H2: The availability of product information reduces the time required to perform consumer assessment of product quality.

H3: Clothing brands with a similar level of quality possess a set of features that distinguish them from others.

The article presents the results of research carried out based on consumer assessment of the quality of clothing using sensory analysis. The choice of this method is closely related to how consumers evaluate the quality of the product while making their purchasing decisions. As Zeithaml indicates, such an evaluation is connected mainly with sensations (sensory, emotional, and expressive) that the users experience in relation to the product [19]. The application of this method in controlled conditions on a sufficiently large group of consumers (minimum 100 assessors according to ISO 11136:2014) can provide a lot of valuable information, based on which the positioning of the product on the market can be analyzed by comparing it with similar products offered by competitors [20].

2. Experimental

2.1. Methods

The scope of the study included three stages. In the first stage, a short survey research was performed on a group of 320 respondents. The questionnaire included four items that measured the motivational constructs related to purchasing behavior of respondents, including their attitude to branded products, using a five-point Likert scale, ranging from “strongly disagree” = 1 to “strongly agree” = 5. The target group was female aged 19–25 years. The choice of such a structure of the study group was decided based on the literature of the subject, according to which young consumers are a very specific and extremely important market group who strongly feel the need to be accepted by peers and follow fashion and trends [21]. Besides, young consumers, especially women, are mainly responsible for clothing purchases, make more frequent clothing purchases, and spend more money on clothing [1, 22].

In the second and third stages of the study, the sensory consumer quality assessment of clothing products of various brands was performed. During the second stage, the brand name and the rest information about product (e.g., the fabric composition and price) were hidden from the assessors (blind test), while during the third stage they had access to all information (brand name, price, and fabric composition). The consumers assessed the products with eyes and touch senses, analyzing quality parameters such as product’s esthetics, material composition, cut, diligence, additional elements, and overall quality. A 5-point hedonic scale with the verbal anchor was used for the assessment. The consumer assessment of the quality of clothes was carried out by 115 individuals, based on the assumptions of the international standards and the literature in the field of sensory analysis [20].

2.2. Materials

The subject of the study was white casual shirts, either made of cotton or with a very high content of cotton (in the case of two brands, the offer did not include shirts made of 100% cotton) purchased in the retail chains of clothing brands available on the Polish market. Casual shirts are eagerly bought by Poles, and their design is so complex that it can determine many quality parameters that are important for consumer quality assessment. The choice of brands was guided by their popularity and the availability of comparable products; hence, five of the selected products represented the most popular brands among Polish consumers [23], for example, H&M, Reserved, Zara, C&A, and New Yorker, one product—a favorite among Poles luxury brand—Tommy Hilfiger, which took second place in the ranking of luxury clothing brands [24], and one product—a brand, which was not found in the ranking (Cubus). The price of shirts comprised three ranges: lower prices (from 59.90 to 79.90 PLN), average prices (from 99.00 to 139.00 PLN), and the highest price (359.00 PLN).

2.3. Data analysis

The results obtained were subjected to statistical analysis using the Statistica software (2019, version 5.2.67). The existence of statistical differences between the average values of parameter ratings obtained in the consumer perceived quality survey and the sensory assessment of the products was verified using the t-test for two independent tests. The significance level for all statistical analyses was set at $p < 0.05$.

To check the similarities or differences between the assessed objects considering the selected set of features, the PROFIT analysis (PROperty FITting) was performed for the obtained results. The quality of matching data restored from the input data was measured using the standardized residual sum of squares (STRESS) function.

Brand taxonomy was conducted by using the cluster analysis method, based on the average values of the assessments of quality parameters of the products tested. The results of the analysis were interpreted on a dendrogram, on which clusters were determined based on the plot of the binding distance relative to the binding stages. Moreover, the hypotheses regarding the differentiation in the perceived quality of branded products forming subsequent clusters were verified using the Fisher–Snedecor test. The post-hoc analysis was performed with the NIR test. Inferences were carried out at the significance level $\alpha = 0.05$. 

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3. Results and discussion

3.1. The role of the clothing brand in consumer purchasing behavior

The verification of the aforementioned hypotheses (vide: Introduction) was preceded by a survey on consumer motivation to establish to what extent the brand influences consumer purchasing decisions and whether it affects the perception of the quality of the product. The summary of respondents’ answers is presented in Figure 1.

The obtained results indicate a very intricate role of the brand in the purchasing behavior of respondents, which is consistent with the findings reported by the other researchers [7, 25]. Although almost 38% of respondents agree with the statement that the brand influences their purchasing decisions and 11% of them is completely convinced of this, it should be noted that about 22% of respondents disagree with this claim, and as many as 40% of respondents are unable to clearly define their position. Regarding the statement that the brand determines the quality of products, the respondents’ opinions are also divided. Almost 39% of the respondents disagree with this statement, about 33% agree, and almost 28% do not declare any specific position. Particularly interesting answers were obtained regarding the relationship between the price and quality of products. They show that for approximately 46% of respondents, good quality products do not have to be expensive, only 20% of respondents think differently, and as many as 33% of respondents are unable to clearly define their position. It is also worth mentioning that almost 65% of respondents claimed their readiness to pay more for a branded product, which is somewhat surprising regarding their inexplicit declarations about the role of the brand in purchasing decisions and not noticing the significant relationship between high price and quality. Based on these results, it can be assumed that the declaration to pay more for a branded product is rather related to the need for communicating one’s self-image to the surroundings. A strong brand is often highly appealing to consumers, particularly when they can express their material and social status through it or exhibit their belonging to a specific subculture [26–28].

3.2. The role of the brand in assessing the quality of clothing

To verify the first hypothesis that the product information provided on the labels has a significant impact on the consumer assessment of the quality of clothing, tests of products of known brands were carried out and compared with the results of the blind test (products displayed with their brand name covered). On the one hand, blind tests are often used to assess the strength of a brand; on the other hand, to check the quality of the product itself (excluding external clues such as brand, country of origin, and price). It can, therefore, be expected that in the case of a positive perception of the brand, the comparison of the ratings obtained in both tests will reveal their similarly favorable impact on the product’s rating. The summary of the results of the two conducted assessments is presented in Table 1.

It was shown that the average ratings of all parameters of the tested products are higher for products of a known brand (ΔPA >0), regardless of whether the brand was rated poorly (< 2.63 < X < 2.82), average (< 3.24 < X < 3.69), or high (3.88 < X < 4.13>). Although it should be noted that this difference was not always statistically significant (this was the case in 29 out of 42 ratings). The biggest discrepancies were observed for the Tommy Hilfiger product (this brand, as mentioned earlier, is generally perceived by Polish consumers as a luxury one; besides, the product of this brand was also distinguished by the highest price—359.00 PLN), for which the average ratings of all tested product characteristics of the known brand were higher than the scores obtained in the blind test (ΣΔPA = 4.9). Therefore, they point to the significant impact of a well-perceived brand and high price on the quality assessment of the product sold under it, which is consistent with the results obtained by Davis who suggested that consumers often use clues, such as price or brand name, to achieve an impression of top quality [8].

On the other hand, it is worth noting that also in the case of other products, including those with the lowest price tag, the presence of the label had a positive impact on the level of quality assessment of the products analyzed, although it seemed that such information should not affect the assessment, and if so lower, rather than increasing it. This observation, in turn, contradicts the conclusions made by Forsythe, according to whom, consumers rely primarily on actual garment characteristics rather than the brand name, as an indicator of garment quality [29]. However, it is worth emphasizing that the author’s research was based on consumer declarations and not on the results of direct quality assessment involving real products, as was the case in this study.

Analyzing the results of assessments of individual parameters, it can be observed that the largest discrepancies between the blind test and the consumer assessment of labeled products occurred in the case of the fabric composition variable. The absolute sum (ΔPA) of all differences in the assessment of fabric composition was on the level of 5.54 points, while in the case of other features, this value ranged from 1.83 (overall quality) to 2.82 (additional elements). Consequently, statistically significant differences for each compared pair were found for the fabric composition variable. Yet, it should be mentioned that consumer assessment of the fabric composition performed tactlessly revealed poorer ratings when the subjects did not have access to the product labels, which can be explained by...
Table 1. The average values and standard deviations (SDs) of the ratings assigned to individual brands—blind test—known brand

| Product                         | C&A-blind test | C&A-known brand | Cubus-blind test | Cubus-known brand | H&M-blind test | H&M-known brand | New Yorker-blind test | New Yorker-known brand | Reserved-blind test | Reserved-known brand | Tommy Hilfiger-blind test | Tommy Hilfiger-known brand | Zara-blind test | Zara-known brand | ∑∆PA for brand | ∑PA for quality parameters |
|--------------------------------|----------------|-----------------|------------------|-------------------|----------------|---------------|---------------------|-----------------------|---------------------|---------------------|-------------------------|----------------------------|----------------|----------------|----------------|--------------------------|
| Aesthetics                     | 2.37           | 2.75            | 3.18             | 3.51              | 3.18          | 3.47          | 2.14                | 2.18                  | 3.43                | 3.67                | 3.28                    | 4.08                        | 4.16          | 4.19          | 2.11          | 5.54                     |
| SD                             | 1.10           | 1.03            | 0.99             | 1.00              | 0.99          | 0.93          | 1.06                | 0.99                  | 1.06                | 0.92                | 1.01                     | 0.75                        | 0.99          | 0.97          | 2.22          | 2.27                     |
| ∆PA                            | 0.38           | 0.33            | 0.29             | 0.04              | 0.24          | 0.80          | 0.45                | 0.85                  | 1.91                | 0.85                | 1.94                     | 0.85                        | 1.94          | 0.85          | 2.82          | 1.83                     |
| P                              | 0.009          | 0.013           | 0.25             | 0.750             | 0.065         | 0.000         | 0.000               | 0.000                 | 0.000               | 0.000               | 0.000                    | 0.000                       | 0.000         | 0.001         | 0.03          | 0.05                     |
| Composition                    | 2.49           | 3.93            | 2.95             | 3.97              | 3.57          | 4.05          | 3.22                | 3.80                  | 3.52                | 4.24                | 3.32                     | 4.17                        | 3.45          | 3.90          | 2.22          | 2.27                     |
| SD                             | 0.95           | 1.07            | 1.03             | 1.12              | 0.94          | 0.98          | 1.06                | 1.25                  | 1.07                | 0.92                | 1.03                     | 0.66                        | 1.15          | 0.84          | 2.82          | 1.83                     |
| ∆PA                            | 0.144          | 1.02            | 0.48             | 0.58              | 0.72          | 0.85          | 0.45                | 0.74                  | 0.14                |                     |                          |                             |               |               | 0.03          | 0.03                     |
| P                              | 0.000          | 0.000           | 0.000            | 0.000             | 0.000         | 0.000         | 0.000               | 0.000                 | 0.000               | 0.000               | 0.000                    | 0.000                       | 0.000         | 0.001         | 0.03          | 0.05                     |
| Style                          | 3.25           | 3.63            | 3.50             | 3.80              | 3.52          | 3.77          | 3.10                | 3.25                  | 3.17                | 3.48                | 3.54                     | 4.18                        | 3.93          | 4.17          | 2.27          | 2.27                     |
| SD                             | 0.97           | 0.73            | 0.91             | 0.68              | 0.93          | 0.84          | 0.84                | 0.95                  | 0.98                | 0.96                | 0.81                     | 0.73                        | 0.97          | 0.77          | 2.82          | 1.83                     |
| ∆PA                            | 0.38           | 0.30            | 0.25             | 0.15              | 0.31          | 0.64          | 0.24                |                     |                     |                     |                          |                             |               |               | 0.03          | 0.03                     |
| P                              | 0.001          | 0.006           | 0.038            | 0.190             | 0.019         | 0.000         | 0.019               | 0.000                 | 0.000               | 0.000               | 0.000                    | 0.000                       | 0.000         | 0.003         | 0.03          | 0.05                     |
| Additional Elements            | 3.28           | 3.35            | 3.45             | 3.60              | 3.55          | 3.58          | 2.78                | 2.83                  | 3.35                | 3.63                | 3.51                     | 4.17                        | 4.01          | 4.31          | 1.83          | 1.83                     |
| SD                             | 0.96           | 0.76            | 0.90             | 0.67              | 0.93          | 0.73          | 0.94                | 0.94                  | 0.96                | 0.73                | 0.87                     | 0.63                        | 0.90          | 0.71          | 2.82          | 1.83                     |
| ∆PA                            | 0.036          | 0.15            | 0.03             | 0.05              | 0.28          | 0.66          | 0.3                 |                     |                     |                     |                          |                             |               |               | 0.03          | 0.03                     |
| P                              | 0.002          | 0.160           | 0.754            | 0.676             | 0.014         | 0.000         | 0.000               | 0.000                 | 0.000               | 0.000               | 0.000                    | 0.000                       | 0.005         | 0.05          | 0.03          | 0.05                     |
| Overall Quality                | 2.89           | 3.25            | 3.45             | 3.60              | 3.55          | 3.58          | 2.78                | 2.83                  | 3.35                | 3.63                | 3.51                     | 4.17                        | 4.01          | 4.31          | 1.83          | 1.83                     |
| SD                             | 0.96           | 0.76            | 0.90             | 0.67              | 0.93          | 0.73          | 0.94                | 0.94                  | 0.96                | 0.73                | 0.87                     | 0.63                        | 0.90          | 0.71          | 2.82          | 1.83                     |
| ∆PA                            | 0.036          | 0.15            | 0.03             | 0.05              | 0.28          | 0.66          | 0.3                 |                     |                     |                     |                          |                             |               |               | 0.03          | 0.03                     |
| P                              | 0.002          | 0.160           | 0.754            | 0.676             | 0.014         | 0.000         | 0.000               | 0.000                 | 0.000               | 0.000               | 0.000                    | 0.000                       | 0.005         | 0.05          | 0.03          | 0.05                     |
| ∑∆PA for brand                | 3.05           | 2.67            | 1.6              | 1.06              | 2.01          | 4.9           | 1.42                |                     |                     |                     |                          |                             |               |               | 1.42          | 1.42                     |

∆PA—the difference between consumer assessment of a product of a known brand and a blind sample.
a relatively high rigidity of the materials from which the shirts were made (typically for new fabrics, including those made of cotton). The disclosure of information about the composition (for most shirts, it was 100% cotton) increased the rating of this parameter, even in the case of such shirts that had a small admixture of other types of fibers apart from cotton.

It should also be noted that the classic measure of variability, which is the SD, adopts lower rating values for known brand products compared with blind brand products (blind test). The mean SD for all shirt ratings in the blind test was SD = 1.00, whereas in the known brand assessment SD = 0.90. Because product information has resulted in a smaller dispersion of ratings, it can be stated that the product brand simplifies the product assessment process.

The second research hypothesis that the availability of product information affects the time of sensory evaluation of product quality was analyzed based on time measurements, the results of which are presented in Figure 2. Under the requirements of the EN ISO11136 standard, each consumer had comfortable conditions for assessing products, there was no communication between assessors thus ensuring independent testing, and the products were displayed and rated in a controlled location (sensory booths).

The analysis of the impact of product information on the time devoted to evaluation was performed using the Student’s t-test for two independent measurements. The hypothesis that the means of variances of two populations are equal was tested at the following level of significance: $\alpha = 0.05$. The average time required to assess products of a known brand was over 10 min ($t = 10:19 \pm 2:40$) and for the blind test was over 13 min ($t = 13:15 \pm 3:59$). The obtained test probability value $p$ was <0.05, which leads to the conclusion that the assessment times for products with a known brand were shorter than the times required for assessing products in the blind test.

Although these two groups of consumers performed the same task, the consumer rating when the information about the brand was available was performed on average 3 min faster than in the case of the blind test. In other words, it can be assumed that knowing the brand itself and having information about it speeds up and facilitates consumer assessment. What is more, in a sense, the brand simplifies the decision-making process, which is consistent, among others with the study results reported by Liczmańska and Konarski [4].

3.3. Differences and similarities in the quality characteristics of the brands tested

In the next stage of data analysis, product positioning maps of the quality of the tested products were elaborated to indicate the differences and similarities in the quality features of the analyzed brands. The results of the PROFIT analysis with marked coordinates of individual features are presented in Figure 3.

The value of the STRESS coefficient for multidimensional scaling, taking into account all of the features, was 0.024, which indicates a good fit of the reproduced distance matrix to the observed distance matrix. The distribution of points presented in Figure 3 indicates how the individual brands are grouped in relation to the examined features. It can be observed that all studied variables are oriented in a similar direction, which indicates their positive correlation. The PROFIT analysis confirmed that all analyzed quality features of the products were assessed differently in the known brand test and the blind test. Moreover, based on the elaborated product positioning maps, it can be seen that higher scores for all variables were obtained for the test in which consumers rated products knowing their brand and price.

The distribution of vectors indicates that product quality ratings are primarily influenced by three groups of factors: (1) fabric composition, (2) workmanship, and (3) all other variables. The direction of the vectors and the angles between the variables of the third group reveal a large correlation between the
quality features in this group. The largest discrepancies in ratings between the blind test and the known brand products are observed for the fabric composition variable, which has already been noted in the previous analysis. In the blind test, consumer ratings of the following brands: H&M, Tommy Hilfiger, Reserved, and Cubus show great similarity in terms of the tested features. The highest similarity level was obtained for the best-rated brand (Zara) and the worst-rated brand (New Yorker). The disclosure of the information about the products of these brands had the least impact on the assessment of their quality.

3.4. The taxonomy of clothing brands

To explore the differences in the quality assessment of products of various brands, a cluster analysis was carried out to verify the Hypothesis 3. Arithmetic average values illustrating the assessment of the quality characteristics of products in the known brand and the blind test were carefully analyzed. The results of this analysis are presented in Figure 4 in the form of dendrograms.

Based on the sensory evaluation of products of the known and unknown brands, three clusters were distinguished, characterized by different quality levels and similar assessment values of the analyzed quality features. As can be seen in Figure 4, these clusters are not fully identical for both tests because of the Tommy Hilfiger product. This particular brand is clustered together with Zara in the known brand test, whereas in the blind test, it can be found next to Cubus, Reserved, and H&M, all of which form cluster 2. In turn, brands, such as New Yorker and C&A, fall under cluster 3. The analysis of average values of quality features presented in Table 2 provides a detailed interpretation of the differences between clusters, and the results of the F-test form the basis for establishing the truth of the Hypothesis 3. Only in one of the six assessed quality features, that is, fabric composition, the differences were not statistically significant, which is not surprising because the composition of the products tested was almost identical. The highest level of quality is exhibited by the brands of the cluster 3, which consists of the following brands: Tommy Hilfiger and Zara (in the known product test) and Zara (in the blind test). These clusters are characterized by the highest grades on a 5-point scale, assuming values in the range <4.24; 3.99> in the known brand test and <4.16; 3.45> in the blind test. Particularly, high ratings (>4 points) were assigned to such quality features of this cluster as overall quality, product aesthetics, and design/style. Features that, in turn, have been poorly rated, especially in the blind test, are fabric composition and additional elements.

Analyzing the other clusters, it can be observed that the second group is characterized by a medium level of quality, obtaining values of average ratings of quality features in the range <4.09; 3.48> for the known brand products and <3.47; 3.01> for the blind test. The highest-rated features in this cluster are fabric composition and workmanship, and the lowest-rated features in the cluster are additional elements and product aesthetics.

The lowest level of quality in this ranking is exhibited by two brands of cluster 1, which obtained the lowest ratings in both tests, that is, <3.87; 2.17> in the known product test and <3.17; 2.07> in the blind test. As it was the case for the brands of cluster 2, features, such as additional elements and product aesthetics, were rated very low. It should be noted, however, that the brands of this cluster were at the lowest price level among the examined products.

4. Conclusions

Based on the conducted survey on consumer purchasing behavior, no clear indications were received regarding the brand’s impact on consumer purchasing decisions. Almost 40% of respondents have no clear opinion regarding this issue, 12% of respondents declare that the brand does not play any role in their purchasing decisions, and the remaining 38% of respondents indicate an important or very important role of the brand. However, the vast majority (65%) of respondents are ready to pay more for a branded product, although 39%
of them do not see any significant relationship between higher price and product quality.

Yet, a direct sensory assessment of the quality of selected brands of products available on the Polish market showed a significant impact of the brand name on the quality assessment process. The study has shown that assessors attribute higher rating values to quality features when they know the product brand and have access to comprehensive product information than when they assess the products in the blind test. The biggest differences in the ratings occurred in the case of the most expensive brand, which is also considered a luxury one in Poland. In this case, the discrepancy in the average ratings between the known brand test and the blind test reached up to 0.84 points on a 5-point scale. The smallest differences were found for the brands that obtained the highest (0.25 points) and the lowest (0.19 points) quality ratings in the blind test.

The disclosure of the product information of these brands had the least impact on the assessment of their quality. Based on the analysis of individual parameter assessments, it was found that the largest discrepancies between the blind test and the known brand test occurred in the case of the variable fabric composition. The tactile assessment of the composition of the fabric yields much lower ratings when the information on the product label is not provided. Consequently, information that the fabric composition is 100% cotton significantly increases the rating of this parameter.

It has also been shown that the brand and its information shortens the assessment time by up to 30%, which, in turn, suggests that it simplifies and facilitates consumers’ decision-making process.

The elaborated product positioning maps provide interesting information on the differences and similarities in the quality features of the analyzed brands, and based on which information about the position of a given brand relative to others can be obtained. Furthermore, the PROFIT analysis has led to the identification of three groups of the most important factors determining the quality of clothing products: (1) fabric composition, (2) workmanship, and (3) all other variables. On the other hand, cluster analysis carried out based on the sensory assessment of shirts has led to the separation of three clusters, characterized by a different levels of product quality, for which sets of features distinguishing a given category have been determined. Top-level brands in this study are characterized above all by high ratings in overall quality, product aesthetics, and design/style, whereas fabric composition and additional elements have performed much worse in this assessment.

Brands centered on cluster 2 represent a medium level of quality, and the highest-rated features in this group are fabric composition and workmanship, whereas the lowest-rated features are additional elements and product aesthetics. Clusters of the highest and medium level brands are not the same for both tests due to the different rating of the most expensive brand (considered a luxury one in Poland), which in the blind test obtained lower ratings of all parameters than in the known brand test. Therefore, the strength of this brand influenced the level of ratings in the quality assessment. Brands rated the lowest by consumers (cluster 1) received particularly poor scores for additional elements and product aesthetics.
The results of the sensory assessments suggest that a higher price does not necessarily translate into a higher quality of the product, which coincides with the opinions of the survey respondents. This is confirmed by the most expensive brand rated in the blind test at the medium quality level (359.00 PLN) and right next to products sold in the price range: from 59.90 PLN, through 79.90 PLN up to 99.00 PLN.

The results of this study can serve as a valuable source of information for brand managers, as well as designers and manufacturers aiming at developing products that fully fit into the intended market segment in terms of their quality level.

5. Limitations and future directions

This study has several limitations. First and foremost, the research results cannot be generalized to all clothing products offered under the brand names investigated. It would be advisable to carry out a sensory assessment of the quality of other clothing items signed by these brands.

The results cannot be also generalized to all consumers because of the study population (young female subjects). Although this particular consumer group plays an important role in the retail clothing market, it does not provide an exhaustive description of consumer quality assessment. Therefore, further research should also include other consumer groups regarding gender, age, or country of origin to investigate whether the quality assessment depends on these features.

It should also be noted that the conducted research comprises only the most popular clothing brands available on the Polish market. It would be interesting to continue the study by investigating the products of other brands, which would make it possible to obtain a more complete picture of the segmentation of retail clothing brands based on their quality.

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