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THE METHOD OF CLASSIFICATION OF CONSUMER ATTITUDE ACCESSIBILITY IN RELATION TO INHERENT PRODUCT FEATURES

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K e y w o r d s: inherent product feature, inherent perceived product quality, attitude accessibility, class of attitude accessibility.

A b s t r a c t

This article is to present a method of classification of consumer attitude accessibility in relation to inherent perceived product features. The method has been adapted to a multidimensional, indirect way of measuring this variable. The underlying principle of this classification is statistical deduction about the quantity of sums of inversions in ordering decisions made by consumers on a sample of products with respect to a given product feature and perceived product quality. The proposed method classifies attitude accessibility into: very high, high, medium, low and very low. The method has been applied to the classification of consumer attitude accessibility of consumers with low cognitive involvement into four products: orange juice, a package of toothpaste, packaged hard toilet soap and apple juice. Various classes of attitude accessibility have been found in relation to particular inherent features of these products, however attitude accessibility tended to be always very high when it came to product packaging.

METODA KLASYFIKACJI DOSTĘPNOŚCI POSTAW KONSUMENTÓW WOBEC INHERENTNYCH WŁAŚCIWOŚCI PRODUKTÓW

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S ł o w a k l u c z o w e: inherentna właściwość, jakość postrzegana, dostępność postawy, klasa dostępności postawy.

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Abstrakt

Opracowano metodę klasyfikacji dostępności postaw konsumentów wobec inherentnych właściwości postrzeganych produktów dostosowaną do wielowymiarowej, pośredniej metody pomiaru tej wielkości. Zasadą klasyfikacji jest tu wnioskowanie statystyczne na temat liczebności sum inwersji uporządkowań dokonywanych przez konsumentów na zbiorze produktów odpowiednio ze względu na daną właściwość i jakość postrzeganą. Opracowana metoda umożliwia klasyfikację dostępności postaw na: bardzo wysoką, wysoką, umiarkowaną, niską i bardzo niską. Metodę tę wykorzystano do klasyfikacji dostępności postaw konsumentów z małym zaangażowaniem poznawczym wobec czterech produktów, tj. soku pomarańczowego, opakowania pasty do zębów, opakowanego, twardego mydła toaletowego oraz soku jabłkowego. Wobec poszczególnych inherentnych właściwości tych produktów stwierdzono różne klasy dostępności postaw, przy czym wobec opakowań produktów – zawsze bardzo wysoką.

Introduction

While designing the quality of their product range, companies operating on the B2C market face a few issues that need to be addressed, usually falling into the following categories:

– the dimensional characteristics of a product determined by the set of its inherent features, especially the features perceived by consumers in a given market segment;

– the weight of its inherent features;

– the model of complex product quality.

It may be assumed that the product to be developed is likely to attract little cognitive involvement of its potential users, what is more, the price itself will bear minimum impact on the buying decisions. As a result, it may be reasoned that the consumer judgement concerning the perceived product quality will become a decisive factor when making a purchase decision. Let us also assume that based on the conducted consumer interviews and the analysed findings inherent product features perceived by an „average consumer" of a selected market segment have been established and that the weight of these features as declared by consumers is known too. Thus, formal assumptions for the construction of a complex product quality model are available. This model is usually developed in an arbitrary fashion as a polynomial of degree 1.

It seems, however, that a declarative model of complex product quality, especially the perceived quality established this way, can only ostensibly indicate the way consumers evaluate product quality. The formulation of consumer judgement will also be conditioned by the ease of consumer evaluation of particular inherent product features, by the degree to which consumers' evaluative judgements (CZAPIŃSKI 1988) of the perceived features have been rooted in their experience and by the fact of how much the assessment of a given feature is tied to its perception.

According to the concept of human cognitive schemes, objects are recognised based on such components of the scheme as constructionism, hypothesis of use, argument of stimulus scarcity, memory stereotypisation, lenient degradation of result and cognitive frugality (NAJDER 1997). Following this, whenever a person perceives an object (a consumer perceives product features) they create an internal representation of this object by integrating external and internal information – default values stored in their memory. It happens this way because the signal reaching the receptors constitutes an insufficient premise to recognise an object and assess its value, which means that the result will be determined chiefly by internal information recall. Whenever during information processing the premises received are insufficient to correctly recognise an object (scarce external signal or poorly defined default values), despite highly uncertain input information, a person will engage in a reasoning process arriving at a result which more or less deviates from reality – called a degraded result.

Moreover, information processing scheme is conditioned, among others, by the principle of cognitive frugality. Human cognitive system has to analyse multiple signals in short periods of time, so it always tends to minimise the number of operations leading to the creation of judgement, as a consequence, it minimises the time in which the result of perception can be obtained (identification and evaluation of an object). Specifically, when the cognitive involvement is low, the internal representation of a perceived object is created by way of recalling only the most deeply embedded and easy to reach bits of information.

Therefore, in the process of formulating an attitude towards product quality, whenever consumers show low cognitive involvement, their real judgement, due to the factors in the cognitive process presented above, may significantly deviate from the one defined by the declarative model of perceived quality. This may be further aggreviated by poorly defined default values corresponding to some inherent features of the perceived object. In an outline, if a consumer is unable to assess product quality based on individual assessment of inherent product features – he has low attitude accessibility towards some of the object features, then according to the principle of memory stereotypisation, lenient result degradation and cognitive frugality he will formulate judgement according to easily perceived external premises and relatively strongly embedded, stereotypical and immediately accessible internal values. It means that in such cases evaluative judgement of product quality will be formulated based on the perception of some situational factors and such product features towards which consumer attitudes tend to be fairly accessible, known as possessing chronic accessibility (BOEHNER and WAENKE 2004).

Thus, if we aim to establish a model of perceived complex product quality, the information on consumer attitude accessibility in a given market segment in relation to individual inherent features of a product at the development stage or already on offer seems indispensible, as only the features towards which consumer attitude accessibility remains high will determine their judgement of perceived complex quality. Being aware of the values or classes of attitude accessibility towards individual features making up dimensional product characteristics makes it possible to verify the initial declarative model of perceived product quality and as a result enables to define and practically employ the knowledge of how consumers really assess product quality.

The aim of this study is to present the method of classification of consumer attitude accessibility in relation to individual product features perceived in a situation of low cognitive involevement. The secondary goal is to apply the above mentioned method for the classification of consumer attitude accessibility in relation to inherent features of selected products for everyday use.

Method and Materials

Method

A multi-position method of analysing consumer attitude accessibility in relation to inherent product features determining the perceived product quality (DOROSZEWICZ 2010, DOROSZEWICZ at al. 2009, DOROSZEWICZ at al 2010, DOROSZEWICZ and KOBYLIŃSKA 2010) has been created in the Institute of Quality Management of the Warsaw School of Economics. The correlation of relations used to arrange a set of products of the same type which consumers arranged according to a given inherent feature and perceived complex quality of the product was adopted as a measure of ease of evaluation of particular product features. These are the underlying assumptions underpinning the method:

1. The object of direct measurement are consumer attitudes in relation to the set of inherent features $X_{i = 1, k; j = 1, m}$ as well as to the total quality $Q_{j = 1, m}$ („m" – various products of the same type, „i" – type of feature, „j" – type of product).

2. Measurements of attitudes towards features $X_{i = 1, k; j = 1, m}$ and quality $Q_{j = 1, m}$ are conducted on ordering ranges by way of comparison of product pairs; a consumer evaluating two products with respect to a given feature X_i or quality Q assigns the value $x_{i,j} = 1$ to the product valued higher and the value $x_{i,j+1} = 0$ to the alternative product; the task of a consumer, as a result, is to complete a matrix of such comparisons.

3. The measure of congruity of orderings of the sums $\sum_{i=2}^{m} x_{i,j}$ (with respect to feature X_i) and $\sum_{j=2}^{m} Q_j$ (with respect to perceived complex quality) are the sums $S_{i,L}$ of position inversions in the ordering with respect to feature X_i as compared to the ordering with respect to perceived quality (L – stands for the consumer) [Ferguson, Takane 2003].

4. Relative consumer attitude accessibility as to the feature X_i is determined by the degree of congruity of the orderings created based on the consumer assessment of the feature X_i and perceived quality Q. The bigger the value of the sum $S_{i,L}$ the higher is the consumer attitude accessibility „L" with respect to the feature X_i.

As a result of the measurements performed using the method in question for each of the analysed features X_i we arrive at a set of sums of inversions $S_{i,L}$ of quantity n (the quantity of the consumer sample studied). The scope R of divergence of the sums $S_{i,L}$ depends on the number of products evaluated by the consumer, e.g. if $m = 7$ products it equals $-21 \leq S_{i,L} \leq 21$. For the purpose of classification of these sums it has been assumed that their scope of divergence should be divided into four equal independent parts delineated by the mid-range M and the quarters – the lower quarter Kd = $0{,}25R$ and the upper quarter Kg = $0{,}75R$. Following this analysis, five classes of consumer attitude accessibility in relation to a given feature X_i may be identified:

1. If above the mid-range, i.e. when $S_{i,L} \geq M$ there are n_1 statistically significantly more sums $S_{i,L}$ than $0{,}5n$ and at the same time above the upper quarter, i.e. when $S_{i,L} \geq$ Kg, there are n_2 statistically significantly more sums $S_{i,L}$ than $0{,}25n$ (distribution $f(S_{i,L})$ strongly left skewed), then the consumer attitude accessibility relative to a given feature X_i is considered very high. E.g. if $m = 7$, $M = 0$, Kd = -10,5, Kg = 10,5 i $n = 40$, and in the bracket $\langle 0;21 \rangle$ there appeared n_1 statistically significantly more results than $0{,}5n = 20$ and at the same time in the bracket $\langle 10{,}5;21 \rangle$ there appeared n_2 statistically significantly more results than $0{,}25n = 10$, then the consumer attitude accessibility relative to this feature is considered very high;

2. If above M there are n_1 statistically significantly more sums $S_{i,L}$ than $0{,}5n$ and at the same time above Kg the quantity of sums $S_{i,L}$ is $n_2 \approx 0{,}25n$ (there is statistically no significant difference between n_2 and $0{,}25n$ – distribution $f(S_{i,L})$ moderately left skewed), then the consumer attitude accessibility relative to a given feature X_i is considered high. E.g. if $m = 7$, $M = 0$, Kd = -10,5, Kg = 10,5 i $n = 40$, and in the bracket $\langle 0;21 \rangle$ there appeared n1 statistically significantly more results than $0{,}5n = 20$ and at the same time in the bracket $\langle 10{,}5;21 \rangle$ there appeared results then the consumer attitude accessibility regarding this feature is considered high.

3. If above M the quantity of sums $S_{i,L}$ equals $n_1 \geq 0{,}5n$ (there is no statistically significant difference between n_1 i $0{,}5n$ – distribution $f(S_{i,L})$ is symmetrical or slightly left skewed), then the consumer attitude accessibility relative to a given feature is considered medium. E.g. if $m = 7$, $M = 0$, Kd = -10,5, Kg = 10,5 i $n = 40$, and in the bracket $\langle 0;21 \rangle$ there appeared $n_1 = 21$ results, then the consumer attitude accessibility relating to this feature is considered medium.

4. If below M the quantity of sums $S_{i,L}$ equals $n_3 > 0{,}5n$ (but there is no statistically significant difference between n_3 i $0{,}5n$ – distribution $f(S_{i,L})$ is right skewed), then the consumer attitude accessibility relative to a given feature is considered **low.** E.g. if $m = 7$, $M = 0$, Kd = -10,5, Kg = 10,5 i $n = 40$, and in the bracket $\langle -21;0 \rangle$ there appeared $n_3 > 20$ results, then the consumer attitude accessibility relating to this feature is considered low.

5. If below M there are n_3 statistically significantly more sums $S_{i,L}$ than $0{,}5n$ (distribution $f(S_{i,L})$ strongly right skewed), then the consumer attitude accessibility relative to a given feature is considered very low. E.g. if $m = 7$, $M = 0$, Kd = -10,5, Kg = 10,5 i $n = 40$, and in the bracket $\langle -21;0 \rangle$ there appeared $n_3 >> 20$ results, then the consumer attitude accessibility relating to this feature is considered very low.

Statistical significance of divergence between quantities of sums $S_{i,L}$ remaining in the brackets $\mathrm{Kg} \leq S_{i,L} \leq \mathrm{MAX}$, $\mathrm{Me} \leq S_{i,L} \leq \mathrm{MAX}$ oraz $\mathrm{MIN} \leq S_{i,L} < \mathrm{Me}$ accordingly, and the criteria $0{,}5n$ lub/i $0{,}25n$ accordingly is unilaterally verified with the test χ^2 at the level $\alpha = 0.05$.

The following pairs of hypothesis are subsequently subject to verification:

$$H_0: n_{1(S_{i,L} \geq M)} = 0{,}5n$$

$$H_1: n_{1(S_{i,L} \geq M)} = 0{,}5n$$

$$H_0: n_{2(S_{i,L} \geq \mathrm{Kg})} = 0{,}25n$$

$$H_1: n_{2(S_{i,L} \geq \mathrm{Kg})} = 0{,}25n$$

$$H_0: n_{3(S_{i,L} < M)} = 0{,}5n$$

$$H_1: n_{3(S_{i,L} < M)} = 0{,}5n$$

Rejection of H_0: $n_{1(S_{i,L} \geq M)} = 0{,}5n$ and acceptance of H_1: $n_{1(S_{i,L} \geq M)} = 0{,}5n$ as well as simultaneous rejection of H_0: $n_{2(S_{i,L} \geq \mathrm{Kg})} = 0{,}25n$ and acceptance of H_1: $n_{2(S_{i,L} \geq M)} = 0{,}25n$ means that the consumer attitude accessibility relating to a given feature X_i is considered very high. Lack of grounds for the rejection of

H_0: $n_{2(S_{i,L} \geq \mathrm{Kg})} = 0{,}25n$ and simultaneous rejection of H_0: $n_{(S_{i,L} \geq M)} = 0{,}5n$ as well as acceptance of and acceptance of H_1: $n_{1(S_{i,L} \geq M)} = 0{,}5n$ means that the consumer attitude accessibility is considered high. Rejection of H_0: $n_{3(S_{i,L} < M)} = 0{,}5n$ and acceptance of H_1: $n_{3(S_{i,L} < M)} = 0{,}5n$ means that the consumer attitude accessibility is considered very low.

Materials

The above explained method of measuring consumer attitude accessibility with respect to inherent perceived product features and the presented principles of classification of this variable have been applied subsequently in the study of the following four objects:

a) orange juice packaged in Tetra-pack;
b) a package of toothpaste;
c) packaged hard toilet soap;
d) a sample of apple juice in an open container made of transparent glass.

In the case of orange juice the object of the study were consumer attitudes towards $k = 5$ following inherent features and perceived quality of the product:

– smell – X_1;
– appearance – X_2;
– colour – X_3;
– packaging – X_4;
– taste – X_5.

The object of the study were $m = 6$ different products of the same type. The quantity of the consumer sample tested was $n = 40$, but due to the results of a preliminary analysis of facade coherence of the obtained orderings the sample quantity was reduced to $n = 33$ persons.

In the case of a package of tooth paste the subject matter of the study were consumer attitudes towards $k = 7$ following inherent features and perceived quality of the object:

– ecological function – X_1;
– information function achieved through inscriptions – X_2;
– information function achieved through symbols – X_3;
– protective function – X_4;
– aesthetic function – X_5;
– logistic function – X_6;
– manipulative function – X_7.

The object of analysis were $m = 7$ different packages of toothpaste (tubes). The quantity of the consumer sample tested was $n = 16$.

In the case of hard toilet soap perceived in a shopping situation the object of the study were consumer attitudes towards $k = 5$ following inherent features and perceived quality of the product:

– colour – X_1;
– individual packaging – X_2;
– smell – X_3;
– shape – X_4;
– appearance – X_5.

The object of the study were 7 hard toilet soaps in individual packaging. The quantity of the tested consumer sample was $n = 17$.

In the case of a sample of apple juice the object of the study were consumer attitudes towards $k = 3$ following inherent features of the object appearance:

– consistency – X_1;
– colour – X_2;
– transparency – X_3.

The object of the study were 7 samples of orange juice prepared in such a way that they differed in appearance. The quantity of the tested consumer sample was $m = 36$.

Results and Discussion

Classification of consumer attitude accessibility relating to inherent features of selected product samples.

In the case of orange juice the divergence scope R of the sums of inversions $S_{i = 1,5,\ L = 1,33}$ of orderings equals $15 \leq S_{i,L} \leq 15$, $M = 0$, Kd = -7,5, Kg = 7,5. In Table 1, for particular features $X_{i = 1,5}$ the obtained quantities were presented $n_{2(S_{i,L} \geq \mathrm{Kg})}$ of the sums $S_{i,L}$ in the brackets $7{,}5 \leq S_{i,L} \leq 15$, the quantities $n_{1(S_{i,L} \geq \mathrm{M})}$ of the sums in the bracket $0 \leq S_{i,L} \leq 15$ and the quantities $n_{3(S_{i,L} \geq \mathrm{M})}$ of the sums in the bracket $-15 \leq S_{i,L} < 0$.

Table 1

Orange juice. The quantities of sums $S_{i,L}$ in the change brackets $7{,}5 \leq S_{i,L} \leq 15$, $0 \leq S_{i,L} \leq 15$ and $-15 \leq S_{i,L} < 0$ accordingly

Features X_i	$n_{2(S_{i,L} \geq \mathrm{Kg})}$ in the bracket $7{,}5 \leq S_{i,L} \leq 15$	$n_{1(S_{i,L} \geq \mathrm{M})}$ in the bracket $0 \leq S_{i,L} \leq 15$	$n_{3(S_{i,L} < \mathrm{M})}$ in the bracket $-15 \leq S_{i,L} < 0$
Smell – X_1	2	14	19
Appearance – X_2	7	24	9
Colour – X_3	8	27	6
Packaging – X_4	14	29	4
Taste – X_5	11	30	3

In the case of the tested sample $n=33$ the criterial quantities are $0{,}25n = 8{,}25 \approx 8$ and $0{,}5n = 16{,}5 \approx 16$ accordingly. In Table 2 for particular features $X_i = 1{,}5$ the results of hypothesis testing were presented concerning the significance of quantity divergences, obtained and criterial, for the sums $S_{i,L}$ and the corresponding categories of attitude accessibility. The critical value of the test χ^2 for one degree of freedom ($v = 1$) and level of significance $\alpha = 0{,}05$ – $\chi^2_{(\alpha = 0{,}05,\ v = 1)} = 3{,}84$.

Table 2

Orange juice – sums $S_{i,L}$. The results of hypothesis testing concerning the significance of quantity divergences, obtained and criterial, and the class of attitude accessibility relating to the feature $X_{i = 1{,}5}$

Feature – X_i	H_0: $n_{2(S_{i,L} \geq \mathrm{Kg})} = 8$		H_0: $n_{1(S_{i,L} \geq \mathrm{M})} = 16$		H_0: $n_{3(S_{i,L} \geq \mathrm{M})} = 16$		Class of attitude accessibility
	$\chi^2_{\mathrm{obl.}}$	p	$\chi^2_{\mathrm{obl.}}$	p	$\chi^2_{\mathrm{obl.}}$	p	
Smell – X_1	$n_2 < 8$	–	$n_1 < 16$	–	0,5625	0,547	low
Appearance – X_2	$n_2 \approx 8$	–	4	0,0455	$n_1 < 16$	–	high
Colour – X_3	0	1	7,56	0,006	$n_1 < 16$	–	high
Packaging – X_4	4,5	0,034	10,56	0,0012	$n_1 < 16$	–	very high
Taste – X_5	1,125	0,289	12,25	0,00046	$n_1 < 16$	–	high

χ^2_{obl} means the calculated value of statistics χ^2, and p – probability of the test error.

In the case of a package of tooth paste the divergence scope R of the sums of inversions $S_{i = 1{,}7,\ L = 1{,}16}$ of orderings equals $-21 \leq S_{i,L} \leq 21$, $M = 0$, the Kd = -10,5, Kg = 10,5. In Table 3, for particular features $X_{i = 1{,}7}$ the obtained quantities were presented $n_{2(S_{i,L} \geq \mathrm{Kg})}$ of the sums $S_{i,L}$ in the brackets $10{,}5 \leq S_{i,L} \leq 21$, the quantities $n_{1(S_{i,L} \geq \mathrm{M})}$ of the sums in the bracket $0 \leq S_{i,L} \leq 21$ and the quantities $n_{3(S_{i,L} \geq \mathrm{M})}$ of the sums in the bracket $-21 \leq S_{i,L} < 0$.

Table 3

A package of toothpaste. The quantities of sums $S_{i,L}$ in the change brackets $10{,}5 \leq S_{i,L} \leq 21$, $0 \leq S_{i,L} \leq 21$ and $-21 \leq S_{i,L} < 0$ accordingly

Features X_i	$n_{(S_{i,L} \geq \mathrm{Kg})}$ in the bracket $10{,}5 \leq S_{i,L} \leq 21$	$n_{(S_{i,L} \geq \mathrm{M})}$ in the bracket $0 \leq S_{i,L} \leq 21$	$n_{3(S_{i,L} < \mathrm{M})}$ in the bracket $-21 \leq S_{i,L} < 0$
Ecological function – X_1	1	11	5
Information function (inscriptions) – X_2	1	12	4
Information function (symbols) – X_3	6	13	3
Protective function – X_4	2	12	4
Aesthetic function – X_5	8	15	1
Logistic function – X_6	3	14	2
Manipulative function – X_7	10	15	1

In the case of the tested sample $n = 16$ the criterial quantities are $0{,}25n = 4$ and $0{,}5n = 8$ accordingly. In Table 4 for particular features $X_{i\,=\,1,7}$ the results of hypothesis testing were presented concerning the significance of quantity divergences, obtained and criterial, for the sums $S_{i,L}$ and the corresponding categories of attitude accessibility. The critical value of the test χ^2 for one degree of freedom ($\nu = 1$) and level of significance $\alpha = 0{,}05$ – $\chi^2_{(\nu\,=\,0{,}05,\ \nu\,=\,1)} = 3{,}84$.

Table 4

A package of toothpaste – sums $S_{i,L}$. The results of hypothesis testing concerning the significance of quantity divergences, obtained and criterial, and the class of attitude accessibility relating to the feature $X_{i\,=\,1,7}$

Feature – X_i	H_0: $n_{2(S_{i,L}\,\geq\,\mathrm{Kg})} = 8$		H_0: $n_{1(S_{i,L}\,\geq\,\mathrm{M})} = 16$		H_0: $n_{3(S_{i,L}\,\geq\,\mathrm{M})} = 16$		Class of attitude accessibility
	$\chi^2_{\mathrm{obl.}}$	p	$\chi^2_{\mathrm{obl.}}$	p	$\chi^2_{\mathrm{obl.}}$	p	
Ecological function – X_1	$n_2 < 4$	–	1.125	0,289	$n_1 < 8$	–	medium
Information function (inscriptions) – X_2	$n_2 < 4$	–	2,000	0,157	$n_1 < 8$	–	medium
Information function (symbols) – X_3	1	0,317	3,125	0,077	$n_1 < 8$	–	medium
Protective function – X_4	$n_2 < 4$	–	2,000	0,157	$n_1 < 8$	–	medium
Aesthetic function – X_5	4	0,045	6,125	0,013	$n_1 < 8$	–	very high
Logistic function – X_6	$n_2 < 4$	–	4,500	0,034	$n_1 < 8$	–	medium
Manipulative function – X_7	9	0,003	6,125	0,013	$n_1 < 8$	–	very high

In the case of hard toilet soap perceived in a shopping situation the scope of divergence R of the sums $S_{i,L}$ as well as the positions of M, Kd, Kg – the same as in the case of toothpaste. In Table 5 for particular features $X_{i\,=\,1,5}$ the obtained quantities $n_{2(S_{i,L}\,\geq\,\mathrm{Kg})}$ of the sums $S_{i,L}$ were presented in the bracket $10{,}5 \leq S_{i,L} \leq 21$, the quantities $n_{1(S_{i,L}\,\geq\,\mathrm{M})}$ of the sums in the bracket $0 \leq S_{i,L} \leq 21$ and quantities $n_{3(S_{i,L}\,\geq\,\mathrm{M})}$ of the sums in the bracket $-21 \leq S_{i,L} < 0$ accordingly.

Table 5

Hard toilet soap. The quantities of sums $S_{i,L}$ in the change brackets $10{,}5 \leq S_{i,L} \leq 21$, $0 \leq S_{i,L} \leq 21$ and $-21 \leq S_{i,L} < 0$ accordingly

Features X_i	$n_{2(S_{i,L}\,\geq\,\mathrm{Kg})}$ in the bracket $10{,}5 \leq S_{i,L} \leq 21$	$n_{1(S_{i,L}\,\geq\,\mathrm{M})}$ in the bracket $0 \leq S_{i,L} \leq 21$	$n_{3(S_{i,L}\,<\,\mathrm{M})}$ in the bracket $-21 \leq S_{i,L} < 0$
Colour – X_1	7	12	5
Packaging – X_2	15	17	0
Smell – X_3	1	13	4
Shape – X_4	3	9	8
Appearance – X_5	3	12	5

The criterial figures here were $0{,}25n = 4{,}25 \approx 4$ and $0{,}5n = 8{,}5 \approx 8$ accordingly. In Table 6 for particular features $X_{i = 1,5}$ the results of hypothesis testing were presented concerning the significance of quantity divergences, obtained and criterial, for the sums $S_{i,L}$ and the corresponding categories of attitude accessibility. The critical value of the test χ^2 for one degree of freedom ($v = 1$) and level of significance $\alpha = 0{,}05$ – $\chi^2_{(v = 0{,}05,\ v = 1)} = 3{,}84$.

Table 6

Hard toilet soap – sums $S_{i,L}$. The results of hypothesis testing concerning the significance of quantity divergences, obtained and criterial, and the class of attitude accessibility relating to the feature $X_{i = 1,5}$

Feature – X_i	H_0: $n_{2(S_{i,L} \geq \text{Kg})} = 4$		H_0: $n_{1(S_{i,L} \geq \text{M})} = 8$		H_0: $n_{3(S_{i,L} \geq \text{M})} = 8$		Class of attitude accessibility
	$\chi^2_{\text{obl.}}$	p	$\chi^2_{\text{obl.}}$	p	$\chi^2_{\text{obl.}}$	p	
Colour – X_1	2,25	0,134	2,000	0,157	$n_2 < 8$	–	medium
Packaging – X_2	30,25	0,000	10,125	0,0015	$n_2 < 8$	–	very high
Smell – X_3	$n_2 < 4$	–	3,125	0,077	$n_2 < 8$	–	high
Shape – X_4	$n_2 < 4$	–	0,125	0,724	0	1	medium
Appearance – X_5	$n_2 < 4$	–	2,000	0,157	$n_2 < 8$	–	medium

In the case of a sample of apple juice the scope of divergence R of the sums $S_{i,L}$ as well as the positions of M, Kd, Kg – the same as in the case of toothpaste. In Table 7, for particular features $X_{i = 1,3}$ the obtained quantities $n_{2(S_{i,L} \geq \text{Kg})}$ of the sums $S_{i,L}$ were presented in the bracket $10{,}5 \leq S_{i,L} \leq 21$, the quantities $n_{1(S_{i,L} \geq \text{M})}$ of the sums in the bracket $0 \leq S_{i,L} \leq 21$ and quantities $n_{3(S_{i,L} \geq \text{M})}$ of the sums in the bracket $-21 \leq S_{i,L} < 0$.

Table 7

Apple juice. The quantities of sums $S_{i,L}$ in the change brackets $10{,}5 \leq S_{i,L} \leq 21$, $0 \leq S_{i,L} \leq 21$ and $-21 \leq S_{i,L} < 0$ -15 ($S_{i,L} < 0$ accordingly

Features X_i	$n_{2(S_{i,L} \geq \text{Kg})}$ in the bracket $10{,}5 \leq S_{i,L} \leq 21$	$n_{1(S_{i,L} \geq \text{M})}$ in the bracket $0 \leq S_{i,L} \leq 21$	$n_{3(S_{i,L} < \text{M})}$ in the bracket $-21 \leq S_{i,L} < 0$
Consistency – X_1	17	30	6
Colour – X_2	13	26	10
Transparency – X_3	6	17	19

The criterial figures here were $0{,}25n = 9$ oraz $0{,}5n = 18$ accordingly. In Table 8 for particular features $X_{i = 1,3}$ the results of hypothesis testing were presented concerning the significance of quantity divergences, obtained and criterial, for the sums $S_{i,L}$ and the corresponding categories of attitude accessibility. The critical value of the test χ^2 for one degree of freedom ($v = 1$) and level of significance $\alpha = 0.05$ – $\chi^2_{(v = 0{,}05,\ v = 1)} = 3{,}84$.

Table 8

Apple juice – sums $S_{i,L}$. The results of hypothesis testing concerning the significance of quantity divergences, obtained and criterial, and the class of attitude accessibility relating to the feature $X_{i=1,3}$

Feature – X_i	H_0: $n_{2(S_{i,L} \geq \text{Kg})} = 9$		H_0: $n_{1(S_{i,L} \geq \text{M})} = 18$		H_0: $n_{3(S_{i,L} \geq \text{M})} = 18$		Class of attitude accessibility
	$\chi^2_{\text{obl.}}$	p	$\chi^2_{\text{obl.}}$	p	$\chi^2_{\text{obl.}}$	p	
Consistency – X_1	7,11	0,008	8,000	0,005	$n_2 < 18$	–	very high
Colour – X_2	1,78	0,182	3,56	0,059	$n_2 < 18$	–	medium
Ttransparency – X_3	$n_2 < 9$	–	$n < 18$	–	0,0555	0,814	low

Conclusions

1. The presented method allows to independently classify attitude accessibility into five categories. The study results of four objects have been classified into four categories of consumer attitude accessibility in relation to particular features of product samples, i.e. very high, high, medium and low. Very low category of attitude accessibility was not found.

2. In the case of consumer attitude accessibility relating to the features of the orange juice packaged in Tetra-pack, attitude accessibility proved very high with respect to packaging, it was high relating to colour, appearance and taste and low for smell. Thus, it may be assumed that while assessing the perceived value of the object consumers predominantly do so based on the packaging.

3. In the case of consumer attitude accessibility in relation to the inherent individual features of the package of toothpaste, very high consumer attitude accessibility was found with respect to the manipulative and aesthetic function. Hence, it should be assumed that while evaluating the perceived quality of a package of toothpaste consumers do so predominantly based on how easy it is to manipulate the packaging and how aesthetic the packaging appears to be.

4. When it comes to the consumer attitude accessibility with respect to the inherent features of hard toilet soap in individual packaging very high accessibility was found in relation to packaging and high when it comes to smell. Hence, it should be assumed that in a buying situation while assessing the perceived value of hard toilet soap, consumers do so predominantly based on packaging, to a lesser degree based on the smell of the soap.

5. In the case of consumer attitude accessibility relating to the features detrmining the appearance of apple juice, very high attitude accessibility was found with respect to consistency, low with respect to the transparency of a sample of juice in a container made of transparent glass. Thus, it may be assumed that while assessing the perceived value of the appearance of apple juice, consumers predominantly do so based on consistency.

6. Whenever consumers make their decisions about products with low cognitive involvement, following the principles of lenient result degradation and cognitive frugality, they most often assess product quality based on packaging, specifically its manipulative and aesthetic function.

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