

Design of a tool to measure the behavioural aspect of conscious and sustainable consumer attitudes

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Abstract

The article focuses on consumer attitudes in the context of conscious and sustainable consumer behaviour. The authors aim to create a tool to measure the behavioural aspect of responsibility and sustainability in consumer attitudes and to examine the impact of selected factors on this rate. Empirical research was conducted on a sample of 510 households. The reliability of the new research tool was verified based on the estimation of reliability coefficients – McDonald’s omega and Cronbach’s alpha. The newly created tool is examined with the help of EFA. The influence of selected demographic factors was also examined, using a one-way ANOVA test to verify hypotheses. Respondents undertake awareness and sustainability actions at an average level of frequency. It can be concluded that gender and age represent significant factors in awareness and sustainability. At the same time, four key areas of sustainability and awareness were identified, namely the civic engagement dimension, consumer awareness, the circular thinking effect, and social responsibility. It is these factors that can be described as key to conscious and sustainable behaviour. Of course, the use of inquiry (with the help of a questionnaire) instead of observation as a scientific research method allows for the examination of only self-reported behaviour. This study may allow for a better understanding and measurement of attitudes in terms of conscious and sustainable consumer behaviour. Few authors focus on measuring behavioural intention, while the emphasis is often placed on the cognitive and affective components of attitudes.

Key words

behavioural component of consumer attitudes, conscious consumption, social behaviour, sustainable consumer attitudes.

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Introduction

The world is evolving and the negative impact of mankind on the environment is becoming increasingly apparent. This impact is largely marked by consumer behaviour, awareness and a willingness to act sustainably. In general, consumer attitude consists of three components, namely cognitive, affective and behavioural (Rosenberg and Hovland, 1960; Ajzen and Fishbein, 1975). Many experts examine the cognitive component, as it represents the knowledge consumers already possess. Knowledge is the basic input that determines how one will act. The affective component represents emotions that can be segmented into two generic categories, namely positive and negative (Čvirik, 2020). It should be noted that classical theories of consumer behaviour as a part of marketing perceive the consumer thought processes as a black box (Kotler and Keller, 2012), which points to the fact that even if the consumer has knowledge and positive emotions, it does not necessarily evoke a behavioural intention (activity). This is where a significant gap in scientific research can be observed.

This article aims to create a tool to measure the behavioural aspect of responsibility and sustainability in consumer attitudes and to examine the impact of selected factors on this rate.

In this article, we focus on examining the behavioural component of consumer attitude in the context of awareness and sustainability. It is important to realise that the behavioural aspect is very difficult to capture through the primary survey, as the behavioural aspect is manifested in two forms, namely action and inaction. To advance the knowledge base of this issue, we examined the behavioural component in terms of frequency of activities, which makes it possible to obtain more sensitive data. We have thus created a simple tool for measuring the frequency of the behavioural component in the

context of sustainable and conscious consumer attitudes. The tool offers the possibility of measurement in different segments, in different geographical locations and with the possibility of subsequent comparison.

Based on the primary survey, it is possible to state the average activity in the field of awareness and sustainability among Slovaks. The results also suggest the influence of age and gender on the frequency of activities, but education and the size of the city of residence do not appear to be significant factors. The results can be used to create marketing campaigns to support sustainable and conscious consumer activities.

1. Literature review

Environmental and social responsibility has an important place in consumer behaviour. The trend of ecological and responsible consumption contributes to the creation of a new lifestyle, and thus also to an emerging segment of consumers, which needs to be identified in more detail. Roche et al. (2009) define sustainable consumption as “the use of products that deliver a better quality of life while minimising the use of scarce natural resources and health-threatening toxic materials, as well as reducing emissions and pollutants throughout the product life cycle so as not to jeopardise future generations’ needs”.

Socially responsible consumption can be understood as consumer behaviour and purchasing decisions related to environmental and scarce resources, motivated not only by a desire to meet personal needs but also by an interest in the well-being of society in general (Antil, 1984; Antil and Bennett, 1979). Based on the above, a responsible consumer can be understood as a consumer who perceives the social and environmental consequences of his consumption and seeks to influence it in a positive way toward achieving global prosperity (Maciejewski

and Lesznik, 2022). In this context, several aspects influence responsible behaviour.

Abdul Wahid et al. (2011) concluded that consumers are increasingly demanding environmentally friendly products. Whereas previously it was possible to recognise the environmental aspect of the product as a competitive advantage, nowadays in the context of the circular economy we speak of necessity (often arising from the law, such as that in Slovakia on the obligation to back up PET bottles – Act 302/2019). In the literature, one may find research showing that environmental considerations, as well as social responsibility, are becoming important factors in consumers' purchasing preferences (Roberts, 1995, 1996a, 1996b; Binninger and Robert, 2008; Zakersalehi and Zakersalehi, 2012; Kita et al., 2021; Maciejewski et al., 2021). In some cases, consumers prefer environmental and social responsibility instead of price (Sua et al., 2012).

Chabowski et al. state that there is a need for a thorough examination of sustainability measures and standards, and there are various tools for measuring awareness. In the context of awareness, the authors consider three generic groups, namely environmental, social and economic (Chabowski et al., 2011). In the professional literature, one may observe several tools and concepts examining consumer awareness. Examples include Consumer Consciousness for Sustainable Consumption (Balderjahn et al., 2013), Ethically Minded Consumer Behaviour (Sudbury-Riley and Kohlbacher, 2016) and the SCB-cube model (Geifer et al., 2018), which, however, focus on cognitive and affective components of attitude.

As notable authors (e.g. Antilles and Bennett, 1979; Courtenay-Hall and Rogers, 2002; Gough, 2002; Čvirik and Ölveczká, 2020) emphasise, the model of consumer behaviour (Rosenberg-Hovland, 1960; Ajzen and Fishbein, 1975) in the context of environmental and social responsibility can also be understood in terms of cognitive,

affective and behavioural dimensions. Many authors focus on the cognitive aspect, examining consumers' knowledge base on the subject. The author of the theory of planned behaviour, Ajzen, states that the generic component is action-intent itself (Ajzen, 1991). However, it is necessary to realise that it is the behavioural component that is the actual behavioural intention, and therefore it is necessary to thoroughly examine this component. It is possible that even if the consumer has information about the correctness of a certain activity (cognitive aspect) he will not carry out his activities according to it. It is based on this logic and the gap in the study of the behavioural aspect of this issue that led to the decision to examine the behavioural aspect of awareness and sustainability in consumer attitudes.

2. Methodology

In the article, several scientific methods are used, which include scientific and philosophical methods (analysis, synthesis, scientific abstraction and the like), but also mathematical and statistical methods. In this work, methods of descriptive and inductive statistics are employed to help achieve the goal of the research.

2.1. Characteristics of the studied sample

The presented article is supported by a primary survey, which was carried out by the method of questioning, specifically in the form of a questionnaire survey. The basic population was defined as Slovak consumers over the age of 18. The age restriction was added for (1) ethical reasons and (2) also due to the fact that 18 years represents the age of adulthood, when certain knowledge, a general view of the world, as well as the ability to solve important life challenges can be expected. Empirical research was conducted in the form of a pre-prepared and agreed-upon structured online interview with each respondent. The respondents were selected

by contacting them based on their e-mail addresses. 534 respondents took part in the survey, but 24 questionnaires had to be excluded due to incomplete data. Based on the above, it can be stated that 510 respondents

formed the sample which became the basis for the research. The sample has similar parameters to the wider population but is not identical. The basic characteristics of the sample are given in Table 1.

Table 1. Sample characteristics

Factor	Value	n (frequency)	n (relative frequency in %)
Gender	female	290	56.86
	male	220	43.14
Age	18-24	118	23.14
	25-39	136	26.66
	40-59	159	31.18
	60 and over	97	19.02
Level of education	Basic education	29	5.69
	Apprenticeship	81	15.88
	High school	215	42.16
Size of the city of residence (population)	University	185	36.27
	Up to 5000	139	27.25
	5000 – 50,000	152	29.80
	50,000-200,000	95	18.63
	over 200,000	124	24.32
	Σ :	510	100

Source: own calculations

As part of the data collection process, CAWI (computer-assisted web interviewing) techniques were used and appropriately supplemented with PAPI (paper-assisted personal interviewing) techniques.

2.2. Design of a model for measuring activities (the behavioural aspect) of sustainable and conscious consumer attitudes

The proposed model may be characterised as a scale tool consisting of 18 statements, to which the respondent responds on a five-point frequency scale (1 – never; 2 – almost never; 3 – from time to time, 4 – almost always; 5 – always). The aim was to examine the frequency of key activities in the context of social awareness, environmental

awareness, as well as sustainable development in terms of the behavioural component of consumer attitudes. As this is a newly created tool, it is necessary to verify its reliability. From the point of view of reliability assessment, two reliability estimation coefficients were used, namely McDonald's ω and Cronbach's α . Both coefficients have certain advantages and limitations, so the decision was made to use both for maximum objectivity. In general, a result above 0.700 is considered to be an acceptable estimate of reliability. Both coefficients show a high degree of reliability of the tool (McDonald's $\omega = 0.851$; Cronbach's $\alpha = 0.852$). From the scientific research on the creation of new measuring tools, it is appropriate to examine the impact of individual items on reliability. In

this context, it can be stated that if an element/statement is excluded and the tool has a higher rate of reliability estimation, its exclusion is deemed appropriate. The results of the “if an item is dropped” method are recorded in Table 2.

Table 2. Reliability estimation results

Items	McDonald's ω^*	Cronbach's α^{**}
1. I am involved in social assistance campaigns such as Apple Day, Daffodil Day, etc.	0.844	0.846
2. I volunteer and help other people.	0.844	0.846
3. I act in the interests of protecting the natural environment (planting trees, clearing forests, feeding forest animals, etc.).	0.835	0.840
4. I work for organisations that support sustainable development goals (organisations working in the field of environmental protection, working against social exclusion, gender equality, equality between nations, etc.).	0.846	0.848
5. I install ecological elements in my home (heat pumps, solar panels and photovoltaics, water and wastewater treatment plants, etc.).	0.835	0.840
6. I buy goods and services from companies that care about the environment.	0.835	0.839
7. I buy used clothes and other such goods.	0.846	0.847
8. I repair or have damaged appliances, furniture, etc. repaired.	0.847	0.848
9. I regularly give goods and unnecessary items to charities.	0.839	0.843
10. I save electricity and gas.	0.843	0.841
11. I save water.	0.844	0.842
12. I act in such a way that I do not pollute the environment.	0.844	0.844
13. I support a healthy lifestyle in my environment (active rest, healthy eating, reducing stimuli, etc.).	0.842	0.845
14. I sort waste and take care to recycle it.	0.843	0.843
15. I try not to waste food.	0.847	0.847
16. I try to reduce consumption by buying goods and services that are needed in advance.	0.843	0.842
17. In the elections, I vote for candidates who declare their support for disadvantaged social groups or care for the natural environment.	0.850	0.851
18. I support various types of humanitarian organisations through monetary donations (Caritas, UNICEF, etc.).	0.844	0.846

Notes: * Total McDonald's ω for the tool = 0.851 (CI 95% = <0.832 – 0.869>). ** Total Cronbach's α for the tool = 0.852 (CI 95% = <0.832 – 0.870>).

Source: own calculations

The results in Table 2 indicate that it is not necessary to exclude any of the statements, and it can be stated that the newly created tool represents a reliable whole.

3. Research results

In the next part of the article, we focus on answering research questions and hypotheses that will help to fulfil the main goal of the article.

RQ1. How can the frequency of individual items be assessed?

Respondents commented on individual statements in terms of frequency of activity, with 1 representing never, 2 – rarely, 3 – from time to time, 4 – almost always, and 5 – always. It follows from the above that the higher the value, the higher the subjective frequency of activity. The mean values and standard deviations for individual statements are recorded in Table 3.

Table 3. Mean values and standard deviations of individual statements

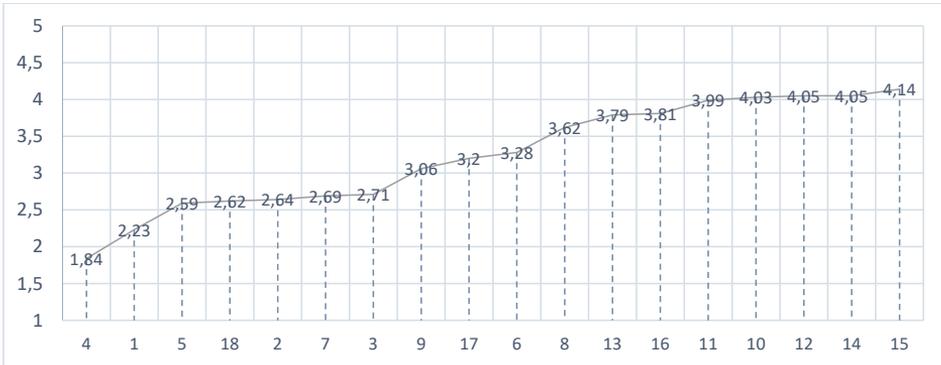
Items	CODE	Mean	St. Dev.
1. I am involved in social assistance campaigns such as Apple Day, Daffodil Day, etc.	Q.1.1	2.23	1.141
2. I volunteer and help other people.	Q.1.2	2.64	1.024
3. I act in the interests of protecting the natural environment (planting trees, clearing forests, feeding forest animals, etc.).	Q.1.3	2.71	1.098
4. I work for organisations that support sustainable development goals (organisations working in the field of environmental protection, working against social exclusion, gender equality, equality between nations, etc.).	Q.1.4	1.84	1.038
5. I install ecological elements in my home (heat pumps, solar panels and photovoltaics, water and wastewater treatment plants, etc.).	Q.1.5	2.59	1.250
6. I buy goods and services from companies that care about the environment.	Q.1.6	3.28	1.045
7. I buy used clothes and other such goods.	Q.1.7	2.69	1.092
8. I repair or have damaged appliances, furniture, etc. repaired.	Q.1.8	3.62	0.977
9. I regularly give goods and unnecessary items to charities.	Q.1.9	3.06	1.165
10. I save electricity and gas.	Q.1.10	4.03	0.944
11. I save water.	Q.1.11	3.99	0.969
12. I act in such a way that I do not pollute the environment.	Q.1.12	4.05	0.783
13. I support a healthy lifestyle in my environment (active rest, healthy eating, reducing stimuli, etc.).	Q.1.13	3.79	0.999
14. I sort waste and take care to recycle it.	Q.1.14	4.05	0.976
15. I try not to waste food.	Q.1.15	4.14	0.912
16. I try to reduce consumption by buying goods and services that are needed in advance.	Q.1.16	3.81	0.972
17. In the elections, I vote for candidates who declare their support for disadvantaged social groups or care for the natural environment.	Q.1.17	3.20	1.091
18. I support various types of humanitarian organisations through monetary donations (Caritas, UNICEF, etc.).	Q.1.18	2.62	1.188

Source: own calculations

Table 3 shows that the lowest frequency of activities occurs in terms of working for organisations supporting sustainable development goals (mean 1.84; st. dev. 1.038) and the highest-frequency activity is the effort

not to waste food (mean 4.14; st. dev. 0.976). On closer examination, individual activities were ranked based on their average frequency (Figure 1).

Figure 1. Average frequency (ascending) of individual activities



Note: the x-axis represents the coded description of each statement; the y-axis represents the average score.

Source: own processing

RQ2: How can the frequency of conscious and sustainable attitudes be characterised based on the created tool?

The average value represents 58.34 points (St. dev. = 10 points). The mode and median are at the level of 59 points. The minimum measured value was at the level of 28 points and the maximum measured value was at the level of 85 points. Overall, this level can be perceived as average.

RQ3: How can the influence of selected factors on the frequency of the behavioural component be characterised in the context of sustainable and conscious attitudes?

H1: There is a relationship between gender and the frequency of the behavioural component in the context of sustainable and conscious attitudes.

H2: There is a relationship between age and the frequency of the behavioural component in the context of sustainable and conscious attitudes.

H3: There is a relationship between education and the frequency of the behavioural component in the context of sustainable and conscious attitudes.

H4: There is a relationship between the size of the city of residence and the frequency of the behavioural component in the context of sustainable and conscious attitudes.

During the examination of the selected factors (gender, age, education and size of the city of residence), the focus was on basic demographic factors. The average frequency values are recorded in Table 4.

Table 4. Average values for the examined segments

Factor		Mean score
Gender	female	59.63
	male	56.63
Age	18-24	55.75
	25-39	56.98
	40-59	59.11
	60 and over	62.12
	Level of education	Basic education
	Apprenticeship	57.52
	High school	58.43
	University	59.15
The size of the city of residence (population)	Up to 5000	58.00
	5000 – 50,000	58.80
	50,000 – 200,000	59.23
	over 200,000	57.46

Source: own processing

Table 4 shows some differences, but these data can only be considered informative. To determine the influence of the factor, hypotheses were formulated and subsequently verified using a one-way ANOVA test. The

ANOVA test was chosen for its robustness, and due to the nature and properties of the data. The key results of the one-way ANOVA test are given in Table 5.

Table 5. Key outputs of the one-way ANOVA test

Factor	Hypothesis	P-value	alfa	df
Gender	H1	0.0008	0.05	509
Age	H2	1.08E-05	0.05	509
Level of education	H3	0.1439	0.05	509
The size of the city of residence	H4	0.5329	0.05	509

Source: own calculations

Based on Table 5, it can be stated that gender and age have a significant impact on the frequency of the behavioural component in the context of sustainable and conscious attitude, measured with the help of the newly

created tool. In the case of education and the size of the city of residence, no significant impact has been demonstrated. Based on the findings, hypotheses H1 and H2 are accepted and hypotheses H3 and H4 are rejected.

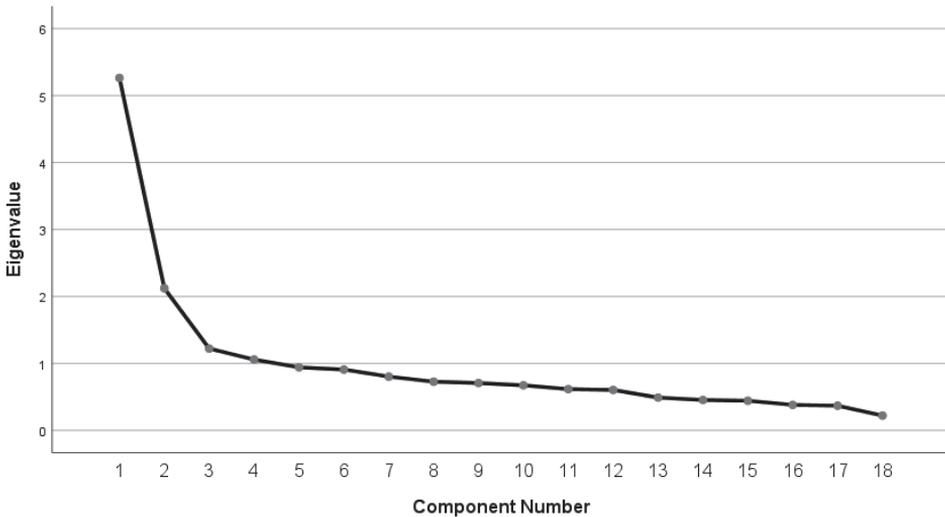
RQ4: How can the dimensionality of a research instrument be evaluated?

To examine the dimensionality of the presented research tool, exploratory factor analysis (EFA), which will also help in examining the validity of the tool, was used. First of all, it was necessary to verify whether it is possible to use EFA. The assumptions of using EFA were verified based on the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett’s Test of Sphericity. In the Kaiser-Meyer-Olkin Measure of Sampling Adequacy, as a rule, the minimum value is above 0.500 and the recommended value is above 0.700. The value obtained was at the level of 0.844, which is more than satisfactory. Bartlett’s Test of Sphericity tests the hypothesis of zero correlation within the variables. The result of Bartlett’s Test of Sphericity at the

alpha level (0.05) indicates the appropriateness of using EFA (Approx. Chi-Square = 2788.012; df = 153; Sig. = <0.001). Based on the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett’s Test of Sphericity, it can be concluded that the tool is suitable for EFA use.

If it has been proven that the use of EFA is appropriate, the next step is to determine the methodological procedure. In the article, the Extraction Method – Principal Component Analysis was used, and as a final solution the Rotation Method – Oblimin (delta = 0) with Kaiser Normalisation was used (due to the nature of the data and the examination of several possibilities, a connection between the latent factors was found). The number of factors that will represent the number of groups (latent variables) was examined within the framework of graphic visualisation with the help of a scree plot (Figure 2).

Figure 2. Scree plot



Source: own processing

Figure 2 has the number of possible components (groups of factors) on the x-axis and eigenvalues on the y-axis. Since the Kaiser Normalisation rule was used, the Eigenvalues should be greater than 1. Chart 1 indicates

that the instrument hides four latent variables. When examining the affiliation of statements to dimensions as well as their character, cumulative explained variance, the pattern matrix was used (Table 6).

Table 6. Pattern matrix

Question / statement	Component			
	Component 1	Component 2	Component 3	Component 4
Q.1.1		0.742		
Q.1.2		0.744		
Q.1.3		0.671		
Q.1.4		0.664		
Q.1.5		0.571		
Q.1.6				0.488
Q.1.7			0.545	
Q.1.8			0.733	
Q.1.9		0.530		
Q.1.10	0.651			
Q.1.11	0.696			
Q.1.12	0.623			
Q.1.13	0.444			
Q.1.14	0.561			
Q.1.15	0.769			
Q.1.16	0.620			
Q.1.17				0.703
Q.1.18		0.527		
Explained variance (in %)	29.2	11.8	6.8	5.9

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalisation.

Source: own processing

Based on Table 6, it can be concluded that the tool shows four dimensions. The first dimension explains roughly 29.2% of the total variance and contains seven statements (namely statements 10, 11, 12, 13, 14, 15, 16). The second dimension explains roughly 11.9% of the variance and contains seven statements (namely statements 1, 2, 3, 4, 5, 9, 18). The third and fourth components cover two statements each, with the third dimension explaining roughly 6.8% of the variance and the fourth roughly 5.9% of the variance. The cumulatively presented dimensions explain roughly 54% of the

variance. There is a weak positive correlation between the dimensions. This correlation clearly points to the correct choice of oblimin type rotation (varimax would distort the information).

Considering the nature of the statements (based on semiotics), dimension 1 can be characterised as the 'civic engagement dimension', dimension 2 as 'consumer awareness', dimension 3 as the 'circular thinking effect' and dimension 4 as 'social responsibility'. It is these factors that can be described as the key to conscious and sustainable behaviour.

4. Discussion

In this paper, the measurement of the behavioural component (the frequency thereof) was addressed in the context of conscious and sustainable consumer attitudes. The results indicate the average level (frequency) of the behavioural component of consumer attitudes. However, it can be stated that some activities are more frequent and others are less so, which leaves a space for marketing activities to increase this frequency. In general, consumers are aware of the issue of pollution and environmental degradation, and the frequency of these activities is relatively high. Activities related to the sustainability of consumer activities are less frequent. The reason for this may be intense marketing communication promoting the need for environmental and social awareness and lower promotion of sustainability as a factor associated with awareness.

The results indicate a significant effect of age and gender on the behavioural component. In general, women are more aware of sustainability and behave in a more sustainable manner. Older consumers also display a higher frequency of sustainability and awareness-raising activities, perhaps due to the fact that they have more time to create beneficial activities. It may also be a sense of guilt, as it is the older generations who have lived longer in disharmony with higher principles than ecological and social awareness. The level of (formal) education was not a significant factor, which only confirms that the cognitive component does not necessarily manifest in the behavioural one. The size of the place (city) of residence also does not appear to be a significant factor influencing the frequency of activities of conscious and sustainable consumer attitudes.

When examining the dimensionality tool, four dimensions were identified, namely (1) the 'civic engagement dimension', (2) the 'consumption awareness dimension', (3) the 'circular thinking dimension', and (4) the

'social responsibility dimension'. These dimensions are perceived as key within consumer attitudes in the context of conscious and responsible behaviour. In the future, it would be appropriate to investigate the dimensionality of the tool in other countries for the purposes of comparison across countries and regions. These results would help identify countries with a high frequency of sustainable and conscious behaviour, which could serve as a model for other countries (with a lower frequency). The results are important, not only for the marketing activities of companies, but also for government institutions dealing with the issue.

Conclusions

The article aimed to create a tool to measure the behavioural aspect of responsibility and sustainability in consumer behaviour and to examine the impact of selected factors on this rate. This objective can be considered fulfilled.

A tool for measuring the behavioural aspect has been created, and will significantly contribute to the knowledge basis of the issue. At the same time, the tool was put into practice in Slovakia. The results of empirical research in that nation indicate the average frequency of activities related to sustainability and awareness in consumer attitudes. Factors that affect this rate, namely age and gender, have also been determined. In general, it can be argued that women are more frequently active in this context than men, and older consumers are more active than young people.

With the help of EFA, the authors concluded that the proposed multidimensional measurement tool contains four dimensions. The dimensions are in accordance with the theoretical level, which served as the basis for the creation of the tool and statements.

The results can be used in marketing communications, creating marketing campaigns to promote environmental and social

awareness as well as sustainability, all focused on behavioural intent. The results can help raise awareness and sustainability levels in shaping the concept. Both frequent activities in this trend and relatively weak points (activities with a low frequency of activity) are indicated. The contribution of the article lies in the creation and testing of a model of consumer awareness and sustainability theory in the context of the behavioural component. Although the behavioural component is often overlooked in the scientific sphere, it can be noted that the behavioural component is the result of consumer attitudes.

The work also contains certain limitations. It should be noted that the primary survey was conducted using a questionnaire, which may have caused a certain amount of distortion. To partially eliminate possible distortions, mathematical-statistical methods, which indicate a high level of data reliability, were used; the results can be generalised with the help of inductive statistics. Of course, the use of inquiry (with the help of a questionnaire) instead of observation as a scientific research method allows one to examine only “self-reported behaviour”. In the future, it would be advisable to supplement the results with field observation.

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