

Article

# Internal and External Determinants of Consumer Engagement in Sustainable Consumption

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**Abstract:** Rapid population growth together with improving living standards is causing bigger and more rapid consumption of resources in industrial, household and personal consumption areas. Unsustainable consumption patterns are negatively affecting our surroundings. In order to promote sustainable consumption it is important to engage consumers in active and mutual dialogue. This study introduces the construct of consumer engagement into the context of sustainable consumption and aims at revealing the factors influencing consumer engagement in sustainable consumption. Two groups of factors, internal and external, each comprising three determinants (environmental attitude, perceived responsibility and perceived behavioral efficiency; and conditions for sustainable consumption, social environment and promotion of sustainable consumption) were identified as having direct positive impact on consumer engagement in sustainable consumption, which in turn had a positive impact on green product buying. The results revealed an important mediating role of the consumer engagement construct, suggesting that application of the engagement construct in the context of sustainable consumption would allow a deepening understanding of actual consumer behavior related with different contexts of sustainable consumption.

**Keywords:** consumer engagement; sustainable consumption; determinants; green product buying behavior

## 1. Introduction

Modern society can be broadly described as having two faces: 1) One reflects consumerism—buying more, consuming more, and throwing away more; 2) another reflects the concern about the use of resources and the impact it has on the environment. This second “face” of the society is showing itself more and more, speaking out loud about the negative effects that unsustainable consumption patterns have on our surroundings. For a long time, sustainability issues were perceived as mainly a responsibility of producers, leaving the consumer out of the way. This is no longer the case, as research reports that individual consumption behavior is a key driver of current unsustainable development [1]. Consumer household purchases are responsible for about 70–80% of Europe’s environmental impacts [2]. However, increasing environmental concern still does not lead to a sufficient part of actual consumer behavior in the context of sustainable consumption (SC).

Geiger et al. [1], while defining sustainable consumption, emphasize individual actions of consumers in the areas of acquisition, usage and disposal of goods, products and services, taking into account the effect on ecological and socioeconomic conditions for today’s and future generations. According to Liu et al. [3], previous research on sustainable consumption can be

defined as either psychology-based or social-context-based studies aiming to affect consumer behavior. The psychology-based studies tried to explore factors that influence consumer attitude; meanwhile, social-context based studies tried to explain how consumer behavior can be affected by structural social factors. From 2006, research on sustainable consumption started to stand out in different disciplines and became interrelated with other, more diverse research themes [3]. According to Pepper et al. [4], the bigger part of research in sustainable consumption is based on a psychological perspective and is oriented at exploring the factors determining ecologically conscious consumer behavior. Indeed, there is an abundant number of studies trying to reveal factors and motives of sustainable consumption behavior [5–14]. The listing of determinants often includes factors considered to be internal to individuals (e.g., values, personal norms, beliefs, attitudes) and external forces—contextual, structural or social factors (e.g., social norms, infrastructural constraints, different incentives). Sustainable consumption became a key topic in marketing research emphasizing the use of various marketing strategies and tools for changing consumer behavior to more environmentally conscious behavior. Since it became clear that one-way communication about negative consequences of unsustainable consumption was not effective at reaching substantial changes in behavior, many studies have concentrated on tools and methods for engaging consumers in active and mutual dialogue about sustainability issues [15–17].

The construct of consumer engagement has gained much interest with marketing research as well as in other academic disciplines, including economy, psychology, sociology, etc. Engagement in publications of social sciences is based on various conceptual approaches, so various sub-forms of the phenomenon might be found. Marketing researchers have concentrated on consumer engagement [7,18–22]. Hollebeek [22] has introduced a dynamic engagement model where consumer engagement is a particular level of consumer motivation related to a particular object or a state depending on a particular situation, which may be described as activity of cognition, emotion or behavior in interaction with the engagement object.

While scientific studies analyzing sustainable consumption sometimes refer to consumer engagement as a tool for promoting sustainable behavior [16,17,23–25] there is very little empirical research that would include the consumer engagement construct in the field of sustainable consumption. There is a lack of research that reveals the conceptual meaning of consumer engagement in sustainable consumption and its empirical relations with other constructs. Therefore, our focus on the exploration of the consumer engagement phenomenon in the context of sustainable consumption widens the boundaries in consumer engagement and sustainable consumption research and contributes to the development of consumer behavior theory.

Based on cause and effect logic, the introduction of consumer engagement construct changes the research direction and raises the need to explore the factors determining consumer engagement in sustainable consumption. Approaches to the factors causing consumer engagement in scientific literature are very diverse due to the variety of engagement objects and contexts. The topic of consumer engagement in sustainable consumption is considered unexplored both in the aspects of the structure of the construct as well as the determinants influencing the engagement. In our study, engagement in sustainable consumption is related to the motivational state of the consumer [22], and from a marketing perspective, the identification of actual consumer behavior as a consequence of consumer engagement is especially important.

Application of cause and effect based logic in the research of consumer engagement in sustainable consumption is justified by the Stimulus–Organism–Response (SOR) paradigm, which emerged from the theory of environmental psychology [26]. According to Koklič [27], “the SOR paradigm has served as a strong guideline for studies on consumer decision-making for decades” [27] (p. 10). Studies that apply SOR logic usually take some external factors (e.g., shopping environment) as stimulus (cause); organism is usually defined as the emotional state of an individual that can cause different consumer reactions (effects); response often implies different kinds of approach or avoidance behaviors [27–30]. In the traditional SOR model, the “stimulus” part consisted of environmental

stimuli. However, there is some empirical proof that stimuli could be internal as well as external to the individual, which would influence consumers' internal state ("organism") [31–33]. We argue that engagement in sustainable consumption as an internal state of a consumer could be evoked through both external and internal influences (stimuli). Based on that, external determinants in our study involve social environment and conditions for and promotion of sustainable consumption, while internal determinants represent such stimuli as perceived responsibility, perceived behavioral efficiency and environmental attitude. The relevance of the SOR model in our paper is based on several arguments. 1) Firstly, factors that influence consumer engagement could be treated as stimuli, leading to a particular state in individuals; 2) secondly, consumer engagement can represent the organism, being the mediator between the cause and the effect. While in many studies the organism was defined as an emotional state, there is some scientific discussion about the interrelation of cognitive and emotional elements while describing the organism [34]. This is in line with a dominant multidimensional approach to consumer engagement, where engagement is understood as integrating cognitive and emotional aspects along with consumer engagement behaviors [18,19]; 3) understanding of the third element of the SOR model—response (effect)—in our research is important for getting insights about the possible drivers of sustainable consumption behavior. As was already mentioned, according to Geiger et al. [1], sustainable consumption involves consumer activities related with acquisition, usage and disposal of goods and services. Therefore, all three stages or any one of them could represent the effect of consumer engagement. In our paper, due to the focus on the first two domains, we limited the analysis of the response (effect) to green product buying, which reflects actual consumer behavior in an acquisition stage.

The main aim of this study is to examine the external and internal factors that influence consumer engagement in sustainable consumption. At the same time, we aim to identify the role of consumer engagement as a mediator between the stimuli (external and internal) and the response (actual sustainable consumption behavior). The present study intends to enrich the existing body of research in the sustainable consumption area by introducing the construct of consumer engagement as a tool for promoting sustainable consumption behavior. Since this domain is under-researched, the results of our study will contribute to both sustainability and consumer behavior fields at academic and practice levels.

## 2. Theoretical background

### 2.1. Sustainable Consumption

Definitions of sustainable consumption vary in the discourse of academic research and practice, most probably due to the interdisciplinary nature of the phenomenon and the fact that social science researchers tend to analyze sustainable consumption from different perspectives. Geiger et al. [1] state that because of the lack of consensus about the definition of sustainable consumption, research on sustainable consumption is limited.

Sustainable consumption is a complex and ambivalent concept composed of two visibly opposite terms—consumption and sustainability. Existing definitions nevertheless show that the main aim of sustainable consumption is to reach the harmony between the satisfaction of consumer needs and preservation of the environment [3,35–38]. It is a search for balance between the consumer freedom of choice and responsibility for others and the Earth. Analysis of recent literature reveals a number of different terms describing sustainable consumption. In order to convey the idea of sustainable consumption the authors use such concepts as green consumption [39], ethical consumption [40], political [41], mindful [42], pro-environmental [43], environmentally friendly consumption [44], etc. Often those concepts focus on a single aspect of sustainable consumption (e.g., the ecological) and emphasize particular consumer intentions, which, of course, are important, but do not reveal a systematic approach to sustainable consumption that is based on the integration of economic, social and environmental aspects [36]. In particular, this limitation is evident in early works. Jackson and

Michaelis [45] suggest that the concept of sustainable consumption deals with ecological and social issues, like environment protection, life quality and intra-generational and inter-generational equity. Existing empirical research often involves one of those areas within a particular industry sector. For example, marketing and consumer behavior research in the context of sustainable consumption usually deals with ecological/environmental issues, analyzing consumer attitudes, values, beliefs, norms and behavior towards buying “green” products, disposal of waste and other related activities. Definitions of sustainable consumption in more recent works include the aspiration to consume in a way that leads to higher quality in environmental, social and economic life areas. Based on this approach, Balderjahn et al. [36] distinguish three areas of sustainable consumption: Environmental, social and economic. Those areas are evident in the work of Geiger et al. [1] as well, since authors identify two sustainable consumption dimensions—ecological and socio-economic. It is obvious that the first corresponds to environmental and the second integrates social and economic dimensions as identified by Balderjahn et al. [36].

The discussion above shows the evolution of the concept of sustainable consumption, from focus on single aspects of sustainable consumption to emphasis on a systemic approach. Liu et al. [3] in their work provide thorough and well-structured analysis of research in the sustainable consumption area, distinguishing two stages in research evolution: 1) Research in 1995–2005, and 2) 2006–2014 (or recent) studies. The authors found that the dominant keywords in research until 2006 were “sustainability” and “sustainable development”, and sustainable consumption was usually analyzed as a composite element of sustainable development. Nevertheless, the first stage showed the growing interest among researchers for the issues of consumption behavior and environmental, economic and consumer–resource interaction. Since 2006, the list of research topics shows sustainable consumption as the stand-alone research field; it includes the topics of consumer behavior and environmental impact. Because of the growing importance of the role of consumer behavior, recent scientific research often equates the concepts of sustainable consumption and behavior. The authors of the present paper argue that this equation can be logically explained if taking a process-based (not dimension-based) approach to sustainable consumption, where sustainable consumption involves the activities of consumers, and those activities in turn constitute the background of the consumer behavior concept.

Discussing consumer activities that could be attributed to sustainable consumption, we refer to the works of Phipps et al. [37], Gupta and Agraval [46], and Geiger et al. [1], where, from the consumers’ perspective, sustainable consumption is defined as a three-stage process. In fact, Gupta and Agraval [46] analyzed “environmentally responsible” consumption, describing it as a process that involves purchase, use and disposal of goods and services. The same approach is evident in the work of Kim et al. [46], while analyzing “green” consumption.

According to Phipps et al. [37], sustainable consumption is a compromise between environmental, social and economic aims, acquiring, using and utilizing products, seeking global welfare for the present and future generations. Sustainable consumption, representing the demand side of the consumption/production coin, should allow for potential changes in consumer behavior. Geiger et al. [1], while analyzing the issues of sustainable consumption measurement, use the term “sustainable consumption behavior”, and emphasize the need of an integrative framework from an interdisciplinary perspective. They proposed a cube model of sustainable consumption behavior (SCB-cube), focusing on ecological and socio-economic sustainability dimensions, different consumption phases (acquisition, use and disposal), different consumption areas (food, housing, mobility, clothing, etc.) and the impact of behavior.

The authors of this paper support the process-based idea of sustainable consumption. This approach is reflected in the analysis of the sustainable consumption as an object of consumer engagement and the determinants of engagement. However, when talking about the effect of consumer engagement in sustainable consumption (response—in the SOR model), we limited our scope to consumer behavior related to green product buying (acquisition phase). It is only one of many possible results of consumer engagement in sustainable consumption, which nevertheless illustrates

the phenomenon. Green products in our study were defined as products, the design and/or attributes of which, and/or the production, involve non-toxic, biologically decomposable, renewable resources, and which decrease damage to the environment during the whole life-cycle [35]. The choice of “green product buying” as the first stage in the consumption process was based on works of Peattie [39], Kim et al. [46] and Lin and Huang [47]. Green product buying is an important form of sustainable consumption behavior and is defined as consumers’ buying activities that are influenced by their environmental concerns and includes products that were made with respect to the environment.

## 2.2. Consumer Engagement

The need to start the active dialogue with consumers about environmental issues and to promote sustainable consumption behavior is evident in recent scientific discourse. One of the areas that has gained much attention in academic literature is the application of the engagement construct [6,18,48]. Brodie et al. [18] note that engagement is a form of social, interactive behavior, described as a transition state formed through the development of relevant engagement processes over a certain period of time [19]. A definition of the concept of consumer engagement usually speaks about the level of consumers’ physical, cognitive and emotional relationship with an organization, product, brand, etc. The interpretation of the concept usually depends on the object of engagement (company, product, brand, advertisement, virtual community, value creation, etc.). In other words, engagement reflects an interactive consumer relationship with a specific object that is context specific.

A broad understanding of the concept of consumer engagement results in ambiguity and confusion. Since the concept of engagement is actively employed in various fields of science and research, acceptance of one umbrella definition of the concept is a challenge. Javornik and Mandelli [49] proposed the following approaches to consumer engagement: Behavior-based, psychological (cognitive and emotional), multidimensional and social. The multidimensional approach is considered to be a dominant research direction on consumer engagement in recent years. It usually emphasizes the integration of cognitive and emotional aspects along with consumer engagement behavior.

Since consumer engagement is usually analyzed from the multidimensional perspective, it calls for a need to substantiate consumer engagement dimensions. The research on dimensions of the consumer engagement construct shows that expression of engagement dimensions identified by various authors may vary in different contexts. Marketing scholars [18,22,48] have suggested that the number of dimensions to measure consumer engagement was determined by the approach to the construct—one-dimensional or multidimensional [19]. In a one-dimensional approach a particular dimension is identified as the most important, and usually is differently defined by different authors; meanwhile, in a multidimensional model there is no consensus so far. In any case, the dominant multidimensional approach often involves three main dimensions: Cognitive, emotional and behavioral engagement. The authors of the present study maintain the same approach while conceptualizing the construct of consumer engagement in sustainable consumption.

The importance of research in the consumer engagement field allows suggesting applying the consumer engagement construct in the sustainable consumption research area as well. While studies analyzing sustainable consumption sometimes refer to consumer engagement as a tool for promoting sustainable behavior [16,17,23–25], there is a lack of research that would reveal the conceptual meaning of consumer engagement in sustainable consumption and its empirical relations with other constructs. The existing gaps highlight the importance of research in the construct itself and the factors determining the engagement. Understanding consumer engagement in sustainable consumption and factors that influence the engagement might lead to a better understanding of sustainable consumption processes and contribute to the development of consumer behavior theory and practice in the context of sustainable consumption.

### 2.3. Determinants of Consumer Engagement in Sustainable Consumption

Exploration of motives, attitudes and values is integral with any analysis of consumer behavior. With the growth of the significance of consumer engagement, it becomes important to understand why some consumers tend to engage more than others. However, approaches to the factors determining consumer engagement found in the literature are very diverse, largely due to the variety of engagement objects and contexts.

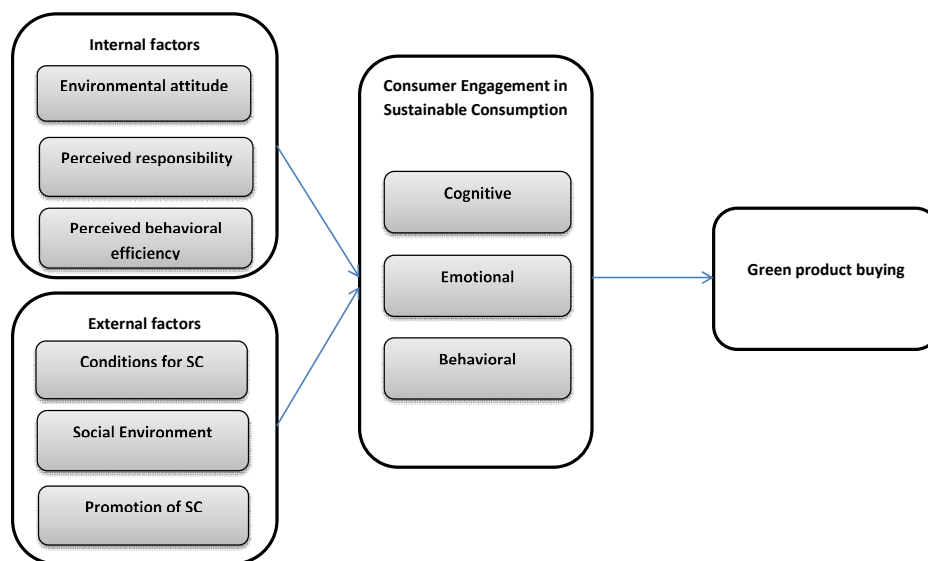
The novelty of the very phenomenon of consumer engagement in sustainable consumption complicates the identification of factors influencing it. There is a number of studies analyzing determinants of sustainable consumption behavior itself [8,13] as well as factors, influencing consumer engagement [6,50]. As factors determining the engagement are closely related with an object of engagement, and the object in our case is sustainable consumption, systematic comparative analysis of existing literature allowed the identification of six factors that might influence consumer engagement in sustainable consumption, reflecting both internal and external factors.

Internal factors include consumer attitude to environmental issues, perceived responsibility for his/her own actions and perceived behavioral efficiency. Investigation of sustainable consumption behavior often embraces environmental attitude that reflects consumer attitude to environmental issues, need to change behavioral habits and other environmental concerns [10,14]. It is assumed that without environmental concern consumers will be less willing to engage in sustainable consumption. Perceived responsibility is another important factor and leads to unselfish behavior [12]. A positive environmental attitude does not necessarily mean the person feels responsible for the damage society does to the environment. Meanwhile, perceived responsibility has a stronger relation with sustainable behavior [51]. Perceived behavioral efficiency reflects the understanding of how personal behavior can affect the situation in the world [6]. Consumers will be more willing to engage into sustainable consumption if they believe their actions could have a significant impact.

From a marketing perspective, it is important to identify external factors because it is easier to manipulate them in order to change consumer behavior. Among those factors we can distinguish conditions for sustainable consumption, social environment and promotion of sustainable consumption. Conditions for sustainable consumption involve conditions for acquiring, using and disposing of products or services with regard to green product accessibility, infrastructure of public transport, recycling, etc. [8,13]. Insufficient conditions could prevent consumers from sustainable behavior despite their own attitude to environmental concerns. The social environment also has a big impact on behavior. Opinion and behavior of surrounding people often become a stimulus or an obstacle to changes [6]. The topic of consumer engagement is closely related with the incentives of companies and organizations that allow reaching a higher engagement level. The promotion of sustainable consumption is the third external factor we identified in this study and involves information about environmental issues, promotion of green products [13,52], promotion of recycling [8,13] and other external initiatives.

### 2.4. Research Framework and Hypotheses

Based on the theoretical background and following the ideas of the SOR paradigm we developed the research framework, indicating the expected relations among different constructs (see Figure 1).



**Figure 1.** Research framework.

The model reads as follows: Internal and external factors influence consumer engagement in sustainable consumption, which in turn has a positive impact on consumer behavior (green product buying).

The SOR model is used extensively in scientific research to explain consumer buying behavior in various contexts. In the traditional SOR model the “stimulus” part is treated as consisting of environmental stimuli. Those stimuli were usually investigated while including external environmental factors influencing consumer behavior. However, referring to Jacoby [53] (pp. 56–57), it is acknowledged that there are numerous internal (such as physiological, neurological and biochemical systems of individuals) and external (such as actions of corporations and governmental policies) factors that have an impact on consumer behavior. In this paper seeking to investigate the phenomenon of consumer engagement in sustainable consumption, the extended versions of the SOR model, proposed by Chan et al. [33] and Peng and Kim [32] were taken as a basis for the development of the research framework. While explaining online shopping behavior Peng and Kim [32] distinguished two stimulus groups: (1) Those with internal influence (hedonic and utilitarian shopping values), and (2) those with external influence (i.e., traditional environmental stimuli). Meanwhile, Chan et al. [33] after a thorough analysis of the state of online impulse-buying research provided an even wider range of internal (various consumer characteristics) and external stimuli (website, marketing, and situational stimulus). In our research framework “external factors” represent external stimuli, while “internal factors” represent internal stimuli.

Existing literature on factors influencing sustainable consumption behavior of individuals and/or determinants of consumer engagement is full of evidences that both internal and external factors are important predictors for consumer engagement and/or sustainable consumption behavior. While we could not find similar studies that would analyze the determinants of consumer engagement in the context of sustainable consumption, we tentatively derive the following hypotheses:

**Hypothesis 1 (H1).** *Internal factors (environmental attitude, perceived responsibility and perceived behavioral efficiency) will have a positive impact on consumer engagement in sustainable consumption.*

**Hypothesis 2 (H2).** *External factors (conditions for SC, social environment and promotion of SC) will have a positive impact on consumer engagement in sustainable consumption.*

“Organism” in SOR model means internal evaluations of consumers [33], i.e., internal processes or states [27]. In our research framework, a three-dimensional construct of consumer engagement

in sustainable consumption describes the motivational state of consumers [22] and represents the “organism”.

Research on consumer engagement reports evidence that engagement leads to enhanced consumer loyalty, satisfaction, empowerment, connection, emotional bonding, trust, commitment, etc. [18,22]. Therefore, we presume that it can lead to a greater level of sustainable consumption as well:

**Hypothesis 3 (H3).** *Consumer engagement in sustainable consumption will have a positive impact on green product buying.*

“Response” in the SOR model equates with the result—the final decision of the consumer. As SOR was widely applied in consumer behavior studies, the “response” also varied depending on the different tasks of various scholars. “Green product buying” serves as the “response” in our conceptual model.

Some findings imply that consumer engagement can work as a mediator [6,19,54,55]. Van Door et al. [6] suggested that antecedents based on customer, company or context could benefit consumers, businesses or processes through customer engagement behavior. Considering this, we propose that consumer engagement is an important mediator of the relationship between internal and external factors and sustainable consumption behavior. Consequently, we expect the mediated relationship to be stronger and propose the following hypotheses:

**Hypothesis 4 (H4).** *Consumer engagement in sustainable consumption positively mediates the impact of internal factors on green product buying.*

**Hypothesis 5 (H5).** *Consumer engagement in sustainable consumption positively mediates the impact of external factors on green product buying.*

### 3. Research Design

#### 3.1. Sample

A quantitative online survey was used for data collection. Purposive sampling along with snowball sampling was applied since we tried to reach online communities that express concerns about environmental, social and economic issues. The link to the survey was advertised via social networks, online forums and word of mouth, trying to reach the respondents who care about the idea of sustainability. The argument for sampling criterion was the need to find consumers that were likely more willing to engage in sustainable consumption. Nonprobability sampling has its limitations due to the subjective nature in choosing a sample, but since the purpose of this research was not to make some generalizable conclusions about the population, but to test theoretically assumed relations, the nonprobability sampling can be justified [56,57]. All data were collected anonymously. In total, 405 usable questionnaires were completed.

Seventy-seven percent of respondents were female. The age ranged from 18 to 68 years with a mean age of 29 years. The majority of respondents (almost 50%) were young, between 18 and 24 years old. 61% of respondents had a higher education. Half of the respondents were single (46%), 70% did not have children and the income per month of 61% did not exceed 600 euros (the net income in Lithuania was 600 euros at the time of empirical data collection). These socio-demographic characteristics show that younger, educated people, mostly women, were keener to participate in this research and this has to be taken into account when interpreting the results.

#### 3.2. Measures and Their Quality Parameters

Two groups each comprising three factors were distinguished in our research as possible determinants of consumer engagement in sustainable consumption (CESC). The internal group



of factors involved environmental attitude, perceived responsibility and perceived behavioral efficiency. Conditions for SC, social environment and promotion of SC represented external factors. Each factor was measured with four items on the seven-point Likert scale (1—“completely disagree”; 7—“completely agree”).

Results of an exploratory factor analysis (principal component analysis with Varimax rotation) confirmed the unidimensional structure and internal consistency of each scale. Cronbach’s alpha coefficients showed a high or satisfactory level of reliability (see Table 1).

**Table 1.** Measurement quality parameters of scales for determinants of consumer engagement in sustainable consumption (CESC).

Factor (Number of Items)	Authors	Cronbach’s Alpha	Factor Loadings
Environmental attitude (4)	Adapted from [10,58]	0.88	0.82–0.92
Perceived responsibility (4)	Adapted from [12,51]	0.83	0.74–0.85
Perceived behavioral efficiency (4)	Adapted from [59,60]	0.87	0.82–0.92
Conditions for SC <sup>1</sup> (4)	Adapted from [8,13]	0.62	0.56–0.79
Social environment (4)	Adapted from [47]	0.69	0.61–0.80
Promotion of SC (4)	Adapted from [8,13,47]	0.72	0.65–0.82

<sup>1</sup> SC = sustainable consumption.

The construct of engagement was considered to be three-dimensional, comprising cognitive, emotional and behavioral aspects [18,48]. Cognitive engagement reflected consumers’ interest in sustainable and/or socially responsible production and products, environmental issues and problem solving methods. Emotional engagement was defined as feelings of pride and inspiration that emerge as a result of a decision to put more effort into preserving the environment, to pay more for green products, etc. Behavioral engagement was defined as consumer efforts to behave/consume responsibly (to buy sustainable products, efficiently use the resources, recycle, etc.). A twelve item seven-point Likert scale (1—“completely disagree”; 7—“completely agree”) was developed for measuring CESC. Exploratory factor analysis (principal component analysis with Varimax rotation) confirmed the three-dimensional structure of engagement (KMO—0.940,  $p < 0.001$ ); three factors accounted for 62.35% of variability of the original 12 items. Internal consistency of sub-scales and the overall scale was tested and Cronbach’s alpha coefficients showed high levels of reliability (see Table 2).

**Table 2.** Results of Exploratory Factor Analysis and reliability of CESC <sup>1</sup> subscales.

Factor (Number of Items)	Authors	Cronbach’s Alpha	Factor Loadings	% of Variance
Cognitive (4)	Developed by authors based on	0.90	0.64–0.77	23.83
Emotional (4)	Calder et al. [61], Hollebeek et al. [48];	0.90	0.49–0.72	23.15
Behavioral (4)	So et al. [62]	0.89	0.58–0.76	22.20
Overall (12)		0.95		

<sup>1</sup> CESC = consumer engagement in sustainable consumption.

Green product buying in our research represented the form of sustainable consumption. This single aspect of sustainable consumption (first stage—acquisition) was chosen as one of many possible results of consumer engagement. A six item scale was developed based on the works of Lin and Huang [47], Leonidou et al. [58] and Geng et al. [14]. Items were measured with the seven-point Likert scale. While originally developed in this research, the scale showed a high level of reliability (Cronbach’s alpha—0.89), and exploratory factor analysis (principal component analysis with Varimax rotation) resulted in one dimension showing the internal consistency of the scale (KMO = 0.839,  $p < 0.001$ , 65.25% of explained variance, factor loadings ranging between 0.743 and 0.847).

The items of all scales along with means and standard deviations are reported in Appendix A Table A1.

Since our study contains self-reported information, which is subject to social-desirability bias, we checked for common method problems by using Harman's single-factor test in which an exploratory factor analysis was conducted on all Likert-scale items without factor rotation [63]. This analysis resulted in eight factors with an eigenvalue >1, explaining 66.9% of the total variance, and the first factor explaining 39.5%. In addition, a confirmatory factor analysis in SPSS AMOS ver. 25 (IBM, Wexford, PA, USA), with one general (method) factor showed poor fit ( $\chi^2/df = 5.46$ ,  $p < 0.001$ , NFI = 0.63, CFI = 0.67; RMSEA = 0.11; the fit criteria are explained below). Therefore, we tentatively conclude that common method bias was not a serious problem in this study.

#### 4. Results

The results are provided in a the following order: 1) Descriptive analysis of determinants, consumer engagement in sustainable consumption and green product buying behavior is presented first; then 2) results of confirmatory factor analysis (CFA) and structural equation modelling (SEM) are presented; and finally 3) differences based on socio-demographic characteristics are briefly discussed.

Descriptive statistics of determinants showed that mean scores were higher for internal factors, showing that internal concern of respondents towards sustainability issues was quite strong. The mean scores of consumer engagement in sustainable consumption showed that respondents were more engaged emotionally (5.49 on a seven-points scale) than, for example, behaviorally. Green product buying reflects similar moderate willingness to buy "greener" production despite the declared concern about the environment (see Table 3).

**Table 3.** Descriptive statistics.

Constructs	Mean	SD
Internal factors		
Environmental attitude	5.88	1.01
Perceived responsibility	5.91	0.99
Perceived behavioral efficiency	5.91	1.01
External factors		
Conditions for SC <sup>1</sup>	3.90	1.13
Social environment	4.35	1.02
Promotion of SC	5.44	1.01
Overall engagement in SC	5.17	1.21
Cognitive	5.25	1.33
Emotional	5.49	1.25
Behavioral	4.77	1.40
Green product buying	4.63	1.36

<sup>1</sup> SC = sustainable consumption.

For examining the fitness of the measures of the model, confirmatory factor analysis (CFA) was performed, which yielded adequate fit for the studied factors (see Table 4).

**Table 4.** Confirmatory factor analysis (CFA).

Factor	Factor Loadings	CFA Model Fit Indices				
		$\chi^2/df$	<i>p</i>	NFI <sup>1</sup>	CFI <sup>2</sup>	RMSEA <sup>3</sup>
Internal factors	0.60–0.89	2.01	<0.001	0.97	0.99	0.05
External factors	0.31–0.78	1.93	<0.001	0.92	0.96	0.05
Overall Engagement in SC	0.69–0.91	2.06	<0.001	0.98	0.99	0.05
Green product buying	0.48–0.90	0.39	0.81	1.00	1.00	<0.001

<sup>1</sup> NFI = Normed Fit Index, <sup>2</sup> CFI = Comparative Fit Index, <sup>3</sup> RMSEA = Root Mean Square Error of Approximation.

For description of constructs and items see Appendix A. CFA fit criteria based on Byrne [64] and Hair et al. [65]:  $\chi^2/df$  (close to 2), *p* (not significant), NFI = Normed Fit Index (>0.95), CFI = Comparative Fit Index (>0.95); RMSEA = Root Mean Square Error of Approximation (<0.08). Green product buying behavior is called a just identified indicator model in which “there are just enough degrees of freedom to estimate all free parameters” [65] (p. 699).

Table 5 shows the correlations of the scales. We can see that in general there are many inter-correlations between the scales except for the scale “conditions for sustainable consumption”. This can be explained by the nature of the scale (see Appendix A). It clearly differs from other measures as it represents the accessibility of infrastructure that facilitates sustainable behavior. Obviously, available conditions are not favorably perceived by respondents, in contrast to the other measures.

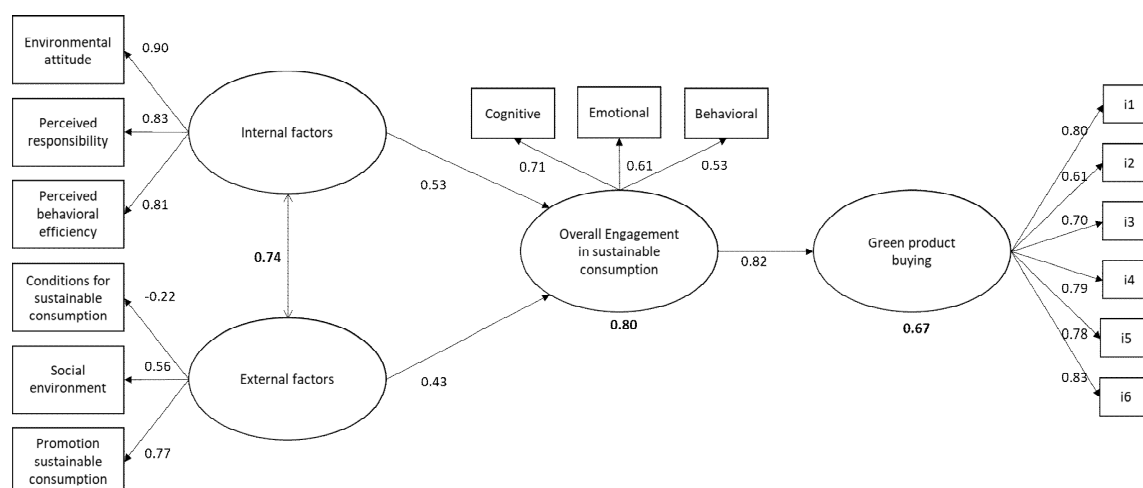
**Table 5.** Correlations of scales, Cronbach’s alpha’s on the diagonal (N = 405).

Scale	1	2	3	4	5	6	7	8	9	10
Environmental attitude (1)	0.88									
Perceived responsibility (2)	0.76 **	0.83								
Perceived behavioral efficiency (3)	0.73 **	0.79 **	0.87							
Conditions for SC <sup>1</sup> (4)	−0.12 *	−0.06	−0.05	0.62						
Social environment (5)	0.33 **	0.28 **	0.35 **	0.01	0.69					
Promotion of SC (6)	0.55 **	0.48 **	0.51 **	−0.20 **	0.42 **	0.72				
Cognitive (7)	0.58 **	0.56 **	0.49 **	−0.16 **	0.25 **	0.38 **	0.90			
Emotional (8)	0.46 **	0.47 **	0.55 **	−0.08	0.36 **	0.50 **	0.15 **	0.90		
Behavioral (9)	0.37 **	0.24 **	0.22 **	−0.09	0.31 **	0.27 **	0.20 **	0.09	0.89	
Green product buying (10)	0.60 **	0.56 **	0.51 **	−0.12 *	0.42 **	0.46 **	0.55 **	0.40 **	0.50 **	0.89

<sup>1</sup> Note: \* *p* < 0.05, \*\* *p* < 0.01.

Structural equation modeling (SEM) was carried out to test the hypotheses. The results showed that the model with overall engagement in sustainable consumption as mediator quite adequately fitted the data ( $\chi^2/df = 3.63$ , *p* < 0.001, NFI = 0.92, CFI = 0.94; RMSEA = 0.08; see Figure 2).

Results revealed significant predictive power of internal and external factors on consumer engagement in sustainable consumption. Internal factors were found to have stronger impact on consumer engagement ( $\beta = 0.53$ , *p* < 0.01) than external factors had ( $\beta = 0.43$ , *p* < 0.01). The results thus support hypotheses H1 and H2. In total, 80% of the variance in consumer engagement in sustainable consumption was accounted for by the two groups of factors, showing their importance for consumer engagement.



**Figure 2.** Model showing mediation of overall engagement in sustainable consumption. Note. See Appendix A for labels of items i1–i6. Values indicate standardized regression coefficients ( $ps < 0.01$ ), correlation ( $p < 0.01$ ) and proportion explained variance ( $R^2$ ) in bold.

The results also supported hypothesis H3, indicating that consumer engagement in sustainable consumption has a positive direct impact on green product buying ( $\beta = 0.82$ ,  $p < 0.01$ ).

Since the construct of consumer engagement is often considered to be a mediator that facilitates some expected outcomes (e.g., loyalty, value for company, value for customer, sustainable behavior), we derived two mediation hypotheses H4 and H5. In line with James et al. [66], we tested for complete and partial mediation. The effects of internal factors and external factors on green product buying behavior appeared to be completely mediated by consumer engagement in sustainable consumption (standardized indirect effects: 0.43 and 0.35, respectively,  $ps < 0.01$ ), supporting hypotheses H4 and H5. Altogether, 67% of the variance in green product buying behavior was explained by the indirect effects of the two groups of factors and the direct effect of engagement. We tested an alternative model in which internal factors, external factors and consumer engagement in sustainable consumption were all independent variables. This model showed that the direct effects of internal factors and external factors were not statistically significant. So, there are no direct effects of the two former factors, but the mechanism goes indirectly via overall engagement in SC, evidencing its pivotal position.

Additionally, we used nonparametric tests in order to look for possible differences in results based on socio-demographic characteristics of respondents. Mann–Whitney U tests showed that engagement in sustainable consumption in female respondents ( $Mdn = 5.58$ ,  $N = 310$ ) was significantly higher than in male respondents ( $Mdn = 4.58$ ,  $N = 95$ ) ( $U = 8963$ ,  $Z = -3.48$ ,  $p < 0.001$ ). Engagement was higher with respondents over 25 years old ( $Mdn = 5.58$ ,  $N = 210$ ) than with those younger than 25 ( $Mdn = 5.00$ ,  $N = 195$ ) ( $U = 15616$ ,  $Z = -4.13$ ,  $p < 0.001$ ). Single respondents ( $Mdn = 5.00$ ,  $N = 186$ ) showed significantly lower engagement than those who were married or cohabitated ( $Mdn = 5.58$ ,  $N = 219$ ) ( $U = 15221$ ,  $Z = -4.39$ ,  $p < 0.001$ ). Respondents with children ( $Mdn = 5.58$ ,  $N = 119$ ) reported higher engagement than respondents who did not have children ( $Mdn = 5.25$ ,  $N = 280$ ) ( $U = 13349$ ,  $Z = -3.14$ ,  $p = 0.002$ ). There were no significant differences found based on education and income. These findings suggest that people who already have a family and have children (consequently who are a little bit more mature) were more willing to engage in sustainable consumption practices.

## 5. Discussion and Conclusions

With this study, we tried to disclose factors that might be important in fostering consumer engagement in sustainable consumption. It is an attempt to integrate the consumer engagement construct into the context of sustainable consumption, as marketing literature indicates that engagement is an important and strategic tool when promoting some kinds of consumer behavior. While consumer

engagement is context specific, engagement in sustainable consumption represents an area that lacks conceptual and empirical background. At the same time, finding internal and external factors influencing the engagement also represents the new research direction in the area of sustainability. Therefore, our study contributes both to the development of theories in consumer behavior and sustainable consumption fields.

We based our research framework, which combines determinants of consumer engagement, the consumer engagement construct itself and the consequence of engagement (green product buying) on the stimulus–organism–response paradigm, which is widely applied in consumer behavior research [27,32,33]. Since our study is one of the first attempts to use the SOR model for explanation of the phenomenon of consumer engagement in sustainable consumption, the confirmation of its suitability could serve as an important outcome as well.

We identified six factors (environmental attitude, perceived responsibility, perceived behavioral efficiency, conditions for SC, social environment and promotion of SC) grouped into internal and external factors that were proved to have a significant positive impact on consumer engagement in sustainable consumption. Internal factors had the stronger direct impact on consumer engagement than external factors, but both groups of factors accounted for 80% of variance in engagement. In general, the results imply that consumers who care about sustainability issues, understand their own responsibility and believe that actions of one individual can make a difference are more willing to engage in sustainable consumption. The lack of empirical research in the area does not allow making meaningful comparisons with findings in similar research. However, existing research that involves sustainable consumption without the construct of consumer engagement showed that the positive attitude to environmental issues [13,14,58], perceived responsibility [8] and perceived effectiveness of one's behavior [14] had a direct positive impact on consumer behavior. Our research contributes to existing research in the field of sustainable consumption by emphasizing the importance of consumer engagement in the context of sustainable consumption.

Another important contribution is the development of the consumer engagement construct in the context of sustainable consumption. Engagement in publications of social sciences is based on various conceptual approaches and various sub-forms of the phenomenon may be found. On the basis of the dynamic model of Hollebeek [22], we conceptualized consumer engagement as a particular level of consumers' motivational state depending on a particular situation, which may be described as activity of cognition, emotion and behavior in interaction with the engagement object.

Research on consumer engagement often reports the positive results of engagement in the form of consumer loyalty, satisfaction, perceived value, intentions or actual behavior [18,22]. A process-based approach to sustainable consumption allows defining sustainable consumption from consumers' perspective as a three-stage process that involves purchase, use and disposal of goods and services [1,46]. In our paper we selected green product buying (acquisition phase) as one of many possible results of consumer engagement in sustainable consumption, although other possible activities in each of the three stages could represent the outcome of engagement as well. The results confirmed the positive influence of engagement on green product buying. Moreover, our results showed the mediating role of the consumer engagement construct. The effects of internal factors and external factors on green product buying were fully mediated by consumer engagement in sustainable consumption. Cognitive, emotional and behavioral engagement strengthens the actual sustainable behavior practices. This is in line with the findings of Joshi and Rahman [67], who suggested that engagement in any kind of sustainable behavior leads to a sense of responsibility and well-being—feeling like part of the change process. Again, the uniqueness of this research does not allow a comparison of the results with existing studies, but studies involving, for example, brand engagement, allow recognition of the common tendency that consumers tend to be more willing to engage with the object emotionally and this emotional state leads to the desirable results, e.g., stronger commitment to the object of engagement. In general, our findings prove that consumer engagement can foster desirable changes in consumer behavior.

## 6. Implications and Limitations

### 6.1. Theoretical Implications

The contribution of this study is the depiction of the construct of consumer engagement in sustainable consumption. So far, no research has focused on examining engagement in sustainable consumption as a consumer's internal state, described through cognitive, emotional and behavioral dimensions. This study is also innovative as it includes and examines external and internal determinants of consumer engagement in sustainable consumption. The findings highlight the need to take into account the mediating role of consumer engagement when analyzing sustainable consumption behavior. Therefore, the present study claims that the SOR paradigm is applicable to research on consumer engagement in sustainable consumption. We argue that engagement, as an internal state of a consumer, can be evoked through both external and internal stimuli, in contrast to traditional approaches, where stimuli are primarily considered as factors outside of individuals. Our findings confirm that perceived responsibility, perceived behavioral efficiency and environmental attitude (internal factors) could be treated as consumers' reasons for engagement, showing the significant positive impact. This study suggests that personal traits of a consumer (e.g., perceived responsibility) as well as external/environmental factors could influence his/her internal state (e.g., engagement), which in turn leads to response (e.g., green product buying). As such, this present study adds to the application of the SOR model by suggesting that personal traits of a consumer could be promising independent variables for the internal state of a consumer as an outcome.

### 6.2. Managerial Implications

Research results showed that respondents had a positive attitude to green product promotion and to the application of other "engaging mechanisms" for sustainable consumption promotion. Social organizations could benefit from any kind of consumer engagement initiatives, as findings imply that one-way communication about the damage of overconsumption and unsustainable consumption is not so efficient as more engaging ways of sustainable consumption promotion. Those more engaging ways, for example, could involve the creation and use of apps for tracing sustainable consumption behavior in purchasing, use and disposal of goods, resources and services; other gamification practices that provide public acknowledgment and other rewards for results in sustainable consumption behavior; and the creation and support of various online/offline communities that promote sustainability. The findings implicate that social organizations should create initiatives for promoting positive attitudes to environmental issues and to reinforce the positive evaluation of sustainable consumption behavior in society. Companies should try to improve green product accessibility with regard to price and convenience, taking other possible conditions for improving more sustainable consumption behavior into consideration. Social ad campaigns should stress individual responsibility and emphasize the significance of the individual's actions in harming the environment and fostering sustainable consumption. Finally, as the social environment was also found to be important, it is obvious that a call for change should address the whole society, hoping for a positive transformation in perception and performance at all levels.

### 6.3. Limitations and Directions for Future Research

Our study can be considered as an exploration in nature since it represents one of the first attempts to use the construct of consumer engagement in the topic of sustainable consumption. Therefore, it has a number of limitations, which in turn show the possible directions for further research. Our research is limited geographically to the population of one European country—Lithuania; the results might differ, taking other cultural contexts into account. Moreover, younger people dominated in the current research and therefore we recommend repeating the research in other samples representative of age difference. However, considering the novelty of the topic, even the current case serves as a basis for further exploration and contributes to the existing body of knowledge. In this study we identified six

factors that form two groups (internal and external) that influence consumer engagement in sustainable consumption. Logically, there might be other factors that could be considered important in determining consumer engagement. Future research might consider those other factors and variables excluded in the present study. Finally, in our research we took green product buying as the result of consumer engagement in sustainable consumption. Sustainable consumption has a variety of possible forms of expression, which also show possible directions for further research in the area.

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## Appendix A

Table A1. Measures.

Construct	Items	Mean	S.D.
<b>Internal factors</b>			
Environmental attitude	1. I am very concerned about the environment.	5.74	1.22
	2. It is important to change our consumption patterns in order to prevent the environment.	6.21	1.04
	3. I would be willing to reduce my consumption in order to protect the environment.	5.87	1.22
	4. It is important to me that the products I use don't harm the environment.	5.69	1.25
Perceived responsibility	1. By taking a decision to buy products of a particular company, consumers are responsible for the effect production does to environment.	5.50	1.49
	2. My everyday consumption decisions affect the environment.	5.87	1.25
	3. Environmental protection is the responsibility of me, not only of government and social organizations.	6.28	1.01
	4. I feel responsible for the environment protection.	5.98	1.13
Perceived behavioral efficiency	1. Since each individual can have any effect upon environmental problems, what I do can make meaningful difference.	6.21	1.01
	2. By purchasing products made in an environmental-friendly way, each consumer's behavior can have a positive effect on the environment and society.	5.74	1.35
	3. It is worth it for the individual consumer to make efforts to preserve and improve the environment.	6.05	1.08
	4. I feel capable of helping solve the environment problems.	5.63	1.32
<b>External factors</b>			
Conditions for sustainable consumption	1. It is hard to find green products in a place where I live (R)	4.26	1.57
	2. Most of green products I want to purchase are too expensive for me (R)	5.28	1.37
	3. There is a lack of infrastructure for garbage disposal in the place I live (R)	3.54	1.87
	4. The public transport infrastructure is not sufficient in the place I live (R)	3.31	1.85
Social environment	1. There are a lot of people in my closest environment who choose environment friendly consumption patterns.	3.87	1.32
	2. Opinion of my friends and relatives about my consumption patterns is important to me.	4.21	1.55
	3. I like when others notice and value my efforts to preserve the environment.	4.97	1.44
	4. Individuals who choose green products are appreciated in a society.	4.38	1.35



Table A1. Cont.

Construct	Items	Mean	S.D.
<b>Internal factors</b>			
Promotion of sustainable consumption	1. Initiatives of socially responsible organizations to inform society about the damage consumption does to environment and promotion of sustainable behavior have an impact on my consumption patterns.	4.84	1.39
	2. I am willing to buy green products instead of regular products if there is a price promotion.	5.9	1.30
	3. If there are some incentive mechanisms, I could change some consumption modes.	5.65	1.24
	4. I am willing to do the waste recycling, because it can save the living cost.	5.35	1.56
<b>Consumer Engagement into Sustainable Consumption</b>			
Cognitive	1. I often think about the damage the unsustainable consumption does to environment.	5.38	1.53
	2. I like to know more about the ways my consumption habits may contribute to environment preservation.	5.54	1.41
	3. When buying goods, I think about the effect my buying habits may have on the environment.	4.63	1.65
	4. I consider the possibility to reuse before disposing unnecessary things.	5.47	1.53
Emotional	1. I feel better person if I can contribute to the environment protection.	5.62	1.35
	2. I feel better when I purchase green products instead of regular.	5.31	1.58
	3. I feel happy when I see that I can contribute to the environment protection.	5.72	1.03
	4. I am proud for myself each time when I find time to recycle.	5.29	1.48
Behavioral	1. I spend a lot of time for searching “greener” product alternatives.	3.96	1.72
	2. I try to switch off the electrical appliances right after using them to reduce electricity consumption.	5.11	1.57
	3. I sort waste and send them to a sorted dustbin, collect used plastic bottles and paper for sales.	5.68	1.37
	4. I like to discuss the issues about environment protection with others, sharing ideas and recommendations.	4.34	1.83
<b>Green product buying behavior</b>			
	1. When choosing among similar products, I select the one which is more environmental-friendly.	4.90	1.61
	2. I buy green or organic food products.	4.93	1.61
	3. I buy products with eco-label.	4.68	1.60
	4. I buy electrical appliances with labels of energy-saving.	4.48	1.75
	5. When purchasing the goods, I will consider whether they are made of recycling materials (plastic, paper, etc.)	4.17	1.76
	6. I prefer products with recyclable or reusable packages.	4.62	1.81

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