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Exploring Antecedents of Consumers' Green and Materialistic Values Conflict: The Case of Baltic Economy

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In societies where consumers hold both green and materialistic values, which can be described as incompatible values, a conflict of values arises. Previous research on the green and materialistic value conflict has focused mainly on their negative consequences for consumer well-being. The antecedents of green and materialistic value conflict remain unclear. This research aims to determine the antecedents of consumers' green and materialistic value conflict. Using a quantitative research strategy, data were collected following the survey method. The results of this research reveal that the effect of impulsive buying on the conflict between green and materialistic values is significant and positive, which means that impulsive buying reinforces the value conflict. Furthermore, the results show that the effect of mindfulness on the conflict between green and materialistic values is significant and negative, which means that mindfulness reduces the value conflict. These findings add substantially to our understanding of antecedents by adding new knowledge on the relatively under-researched antecedents of the conflict between green and materialistic values.

Keywords: green values, materialistic values, value conflict, mindfulness, impulsive buying

Introduction

It is well known that values influence consumer decision-making and consumption behavior. Early studies on consumers' values have found that consumer values have an impact on product attitudes and purchasing behavior. Values influence the ranking of needs that must be satisfied through the purchase of specific consumer goods (Yau, 1994). In the context of consumption, values form consumers' needs and wants (Kim et al., 2002). More recently, Bangsa and Schlegelmilch (2020) suggest that values affect attitudes, which in turn affects intentions and actions. When values are compatible, decision-making for consumers does not become a complicated process. Decision-making can become complicated when a consumer has two conflicting

values because, according to Burroughs and Rindfleisch (2002), one value drives one behavior and the other the opposite. Tang and Hinsch (2018) mention that in developed Western societies, environmental and materialistic values have become megatrends that are incompatible. Environmental and materialistic values should encourage consumers to behave differently. For example, environmental values should encourage consumers to consume as few material goods as possible, while materialistic values should encourage them to value and acquire material possessions.

Since 2002, researchers have focused on a conflict between materialistic values and other values. Prior research has suggested that conflict arises between collective and materialistic values (Burroughs and Rindfleisch, 2002), environmental protection and materialistic values (Ergen et al., 2015), and green and materialistic values (Furchheim et al., 2020). Few studies have explored that value conflict has a negative consequence for consumer well-being. Collective and materialistic values are related to reduced well-being (Burroughs and Rindfleisch, 2002). More recently, it has been established that the conflict between green and materialistic values is associated with reduced self-concept clarity, which is associated with higher stress and lower life satisfaction (Furchheim et al., 2020). However, more recent research on value conflict is lacking. Consumers with conflicting values face psychological challenges as they may experience a conflict of values, which can lead to psychological distress, resulting in reduced well-being and unpleasant emotions such as guilt (Burroughs and Rindfleisch, 2002).

The negative consequences of value conflict on consumer well-being have not yet prompted researchers to address the underlying antecedents of this phenomenon. The antecedents of the conflict between green and materialistic values have not yet been determined. The scientific literature proposes several theoretical assumptions for the antecedents of the conflict between green and materialistic values. The concept of value conflict is conceptually related to the classical theory of cognitive dissonance (Festinger, 1957). The belief-confirmation paradigm of the cognitive dissonance theory states that information that contradicts beliefs, also known as dissonant information, impacts a conflict between cognitions. Another paradigm of the cognitive dissonance theory, forced compliance, suggests that behavior that contradicts cognition causes cognitive dissonance.

While dissonant information and dissonant behavior are theorized as factors that influence the conflict between cognitions, there is no empirical evidence to support that those factors can be the antecedents of the conflict between green and materialistic values. Most research has focused on factors that influence cognitive dissonance. Research shows that impulsive buying (Wen-Kuo et al., 2020; Amr Yassen and Soares, 2021), and social norms (Rothgerber, 2020) impact cognitive dissonance. Prior research has suggested that environmental knowledge can create an internal conflict for materialistic consumers. According to Polonsky et al. (2014), if a consumer holds materialistic values, environmental knowledge about the negative environmental consequences of consumption leads to internal conflict. Previous research has found that mindfulness helps people clarify their values. Ericson et al. (2014) have found that mindfulness is associated with a clearer understanding of values. Mindful people tend to seek consistency between values and behavior (Christie et al., 2017). According to Shapiro et al. (2006), mindfulness intervention reduces psychological distress and perceived stress, and changes in value clarity mediate this effect. According to Kaur and Luchs (2022), mindfulness can be described as an antecedent of personal values.

The antecedents that affect the consumers' green and materialistic value conflict are still under-researched. Current theoretical assumptions on the factors underlying the conflict between green and materialistic values do not allow for reliable identification of these factors. The research question is: what are the antecedents of consumers' green and materialistic value conflict, and how do they affect this conflict? The aim of this work is to determine the antecedents of green and materialistic value conflict. While most research focuses on the consequences of the value conflict, this research focuses on the antecedents and their impact on green and materialistic value conflict. This work makes a significant contribution to the field of consumer behavior by developing the model of antecedents of green and materialistic value conflict.

This paper is divided into the following parts: literature review, methods, results and discussion, and conclusions. The literature review part of this paper introduces the topic trends, the knowledge gap, and the

justification of the hypothesis. The next part considers the research methodology, followed by the results and discussion part, which presents the results of the hypothesis testing and interpretation of the results. The conclusion part summarizes the main implications, limitations, and recommendations for future research.

Literature review

Consumers make consumption decisions every day. Values are important in consumer decision-making and consumption behavior. According to Kaur and Luchs (2022), values influence a consumer's choices and behavior in many areas. In the context of consumer behavior, values influence the extent to which consumers become more aware of the impact of their consumption choices. Value can be defined as a core, enduring belief that guides actions and decisions in specific situations (Rokeach, 1968). Conflict between values can complicate the decision-making process for consumers. Recent findings in the value conflict field have led to the conclusion that a conflict between green and materialistic values exists. The research by Furchheim et al. (2020) has shed more light on green and materialistic value conflict exploration. Consumers who have green and materialistic values experience the value conflict. The conflict between green and materialistic values can be defined as an unpleasant psychological state resulting from green and materialistic values.

In scientific literature, green values can be defined as a tendency to express environmental value through purchases and consumption behavior (Haws et al., 2014). It is generally accepted that values influence behavior. According to Bangsa and Schlegelmilch (2020), personal values are strongly related to sustainable product choices and purchasing decisions. Consumers make purchasing decisions and try to choose products that align with their values, favoring more environmentally, ethically, and socially sustainable products (Testa et al., 2021). Green values also have an impact on consumer consumption behavior. Haws et al. (2014) show that consumers with green values prefer environmentally friendly products. Furthermore, Bangsa and Schlegelmilch (2020) argue that green consumption values are among the main factors positively influencing consumer choice, preference, and intention to purchase sustainable products. According to Atkinson (2015), green consumption can be described as a choice of environmentally friendly goods and services.

Previous research has shown that materialistic values are incompatible with green values. One of the materialistic value beliefs is that material things are a source of happiness and materialistic consumers tend to follow this belief and buy more (Richins, 2013). According to Richins and Dawson (1992), materialistic values are described as the value a consumer places on the purchase and possession of material things. Research shows that materialistic values negatively affect consumers' green consumption behavior. Nguyen et al. (2019) have found that the success of one of the materialism dimensions has a positive impact, while centrality, another dimension of materialism, has a negative impact on the attitude toward green apparel purchases. More recently, Alzubaidi et al. (2021) have found that materialism has a negative effect on the intention to buy green products.

Value conflict can be theoretically explained by the theory of cognitive dissonance. According to the cognitive dissonance theory, when individuals have more than two conflicting cognitions, they experience an unpleasant psychological state of dissonance (Festinger, 1957). Cognition can be defined as any mental representation such as values, beliefs, and attitudes. The cognitive dissonance theory states that the process of dissonance arousal begins when a person experiences a discrepancy between two or more cognitions. Then, a conflict of two or more cognitions creates an uncomfortable negative affective state, which is defined as dissonance. Festinger (1957) further argued that a negative affective state motivates changes in experienced cognitions as individuals seek to restore cognitive coherence and a more pleasant state. People reduce cognitive dissonance by changing those cognitions that are least resistant to change (Hinojosa et al., 2017).

Previous research suggests that beliefs underlying green values should conflict with beliefs underlying materialistic values. According to Burroughs and Rindfleisch (2002), when two values are fundamentally opposed to each other, conflict between those values

should occur more often and with greater intensity. Conflict between values is likely to create psychological tension, leading to diminished well-being. Value conflict has negative consequences for consumer well-being. Burroughs and Rindfleisch (2002) show that value conflict is related to higher levels of stress. Similarly, results of Furchheim et al.'s (2020) research show that green and materialistic value conflict is associated with a lower consumer self-concept clarity, which is related to increased stress and reduced life satisfaction.

Several theoretical assumptions on the conflict between green and materialistic values have been proposed in scientific literature. One of the paradigms of the cognitive dissonance theory, the belief confirmation paradigm, states that information that contradicts beliefs, also known as dissonance information, causes conflict between cognitions. Dissonant information is defined as negative information that is contrary to beliefs and distressing (Séré de Lanauze and Siadou-Martin, 2019). Furchheim et al. (2020) suggest that judgmental statements about materialism have an impact on the value conflict of consumers with materialistic values. Séré de Lanauze and Siadou-Martin (2019) provide evidence that external dissonant information tends to increase psychological discomfort. Consequently, when external dissonant information contradicts values, psychological discomfort increases. Based on the above reasoning, we conclude that dissonant information has an impact on the conflict between green and materialistic values and suggest the following:

H1. Dissonant information has a positive effect on green and materialistic value conflict.

According to Polonsky et al. (2014), the knowledge that consumption behavior has negative environmental consequences leads to cognitive dissonance among materialistic consumers. In scientific literature, environmental knowledge can be defined as general knowledge of facts, concepts, and relationships related to the environment (Fryxell and Lo, 2003). Research shows that materialistic values have a negative relationship with environmental (values) concerns (Gatersleben et al., 2018) and are not compatible with environmental concerns, beliefs, and responsibility (Liobikienė et al., 2020). Liu et al. (2014) have found that consumers with materialistic values are less interested in environmental protection. Environmental knowledge can influence the conflict between green and materialistic values, as this construct is compatible with green values but incompatible with materialistic values. Our hypothesis is as follows:

H2. Environmental knowledge has a positive effect on green and materialistic value conflict.

Rothgerber (2020) demonstrates that cognitive dissonance occurs when cognitions conflict with shared cultural norms. In addition, if a consumer's behavior is contrary to socially acceptable behavior, dissonance may occur. Social norms can be defined as the rules that regulate people's behavior in every context (Burchell et al., 2013). Social norms guide individuals on what behavior is acceptable and how they should behave. Cognitive dissonance occurs when a consumer has values that are not socially acceptable or when these values conflict with socially acceptable values. This can be applied to materialists who live in a society where green values are promoted. Materialists may face a conflict of values when they adopt green values that are incompatible with materialist values. According to Furchheim et al. (2020), the increasing attempts to influence consumers with materialistic values to adopt a green value orientation may lead to an internal value conflict among those consumers. Based on these reasonings, we propose the following:

H3. Social norms have a positive effect on green and materialistic value conflict.

Based on another paradigm of the cognitive dissonance theory – forced compliance – cognitive dissonance is caused by behavior that contradicts cognitions. Similarly, Hinojosa et al. (2017) indicate that one of the main causes of cognitive discrepancy is counter attitudinal behaviors. Cognitive discrepancy can be understood as a discrepancy between two or more cognitions. Individuals who behave contrary to their values or beliefs experience dissonance. In the context of the green and materialistic value conflict, counter attitudinal behavior can be identified as impulsive buying. Impulsive buying is defined as buying impulsively without prior intention to buy (Beatty and Ferrell, 1998). Such counter attitudinal behavior contradicts green values but is compatible with materialistic values. Research has found that impulsive buying behavior leads to cognitive dissonance (Wen-Kuo et al., 2020; Pandey and Jamwal, 2016). Impulsive buying has two aspects: cognitive impulsive buying and affective impulsive buying. Amr Yassin and Soares (2021) have found that only cognitive

impulsive buying affects cognitive dissonance; affective impulsive buying does not affect cognitive dissonance. Consequently, cognitive, and affective impulsive buying influence the green and materialistic value conflict. Based on these reasonings, we propose the following:

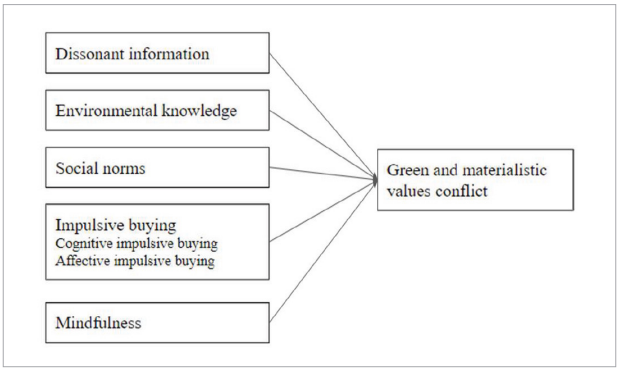
H4a. Cognitive impulsive buying has a positive effect on the green and materialistic value conflict.

H4b. Affective impulsive buying has a positive effect on the green and materialistic value conflict.

Another possible antecedent of the green and materialistic value conflict can be identified as mindfulness. Mindfulness can be defined as the tendency to be aware in everyday life (Brown and Ryan, 2003). Furthermore, mindfulness is related to a clearer understanding of values (Ericson et al., 2014), reduced psychological distress and perceived stress (Shapiro et al., 2006), higher green purchase intention, socially conscious purchasing, and frugal purchasing behavior (Dhandra, 2019). According to Kaur and Lucks (2022), mindful individuals have a clearer understanding of the values they hold and whether their behavior is in line with those values. More recently, Kaur and Luchs (2022) have found that mindfulness has a positive effect on biospheric, altruistic values, and a negative effect on egoistic values. Mindful individuals are more likely than others to express biospheric and altruistic values. This means that individuals with higher levels of mindfulness value environmental protection over wealth, power, and success. A clearer understanding of values can lead to less conflict between green and materialistic values for mindful consumers. Our hypothesis is as follows:

H5. Mindfulness has a negative effect on green and materialistic value conflict.

Fig. 1. *Conceptual model*



While several theoretical assumptions about the conflict between green and materialistic values have been proposed in academic literature, the assumptions underlying the conflict between green and materialistic values have not yet been identified. Fig. 1 shows that the conceptual model proposes that dissonant information, environmental knowledge, social norms, impulsive buying, and mindfulness are antecedents of the conflict between green and materialistic values. Dissonant information, environmental knowledge, social norms, and impulsive buying (cognitive and affective impulsive buying) have a positive effect, while mindfulness has a negative effect on green and materialistic value conflict.

Methods

Data collection and survey instrument

The quantitative research strategy was chosen for this research. Data were collected following the survey method. In this research, a questionnaire as a research instrument was developed and pretested. The questionnaire was distributed digitally to 18–65 years old people living in Lithuania. Stratified random sampling was used in this study. Data collection was based on a professional online research panel of around 20 000 active panelists who have expressed their willingness to participate in the survey research. The data collection by the data provider agency used the Computer Assisted Web Interview (CAWI) method and a pre-screening methodology to select respondents. Stratified random sampling is a method that aims to achieve a greater degree of representativeness and reduce the degree of sampling error. A stratified random sample consists of a random sample from different strata. In this research, gender (female and male) and age (18–65) were used as strata. The data were collected following the principles of confidentiality and voluntary participation. The data were collected in April throughout May 2023. To control potential common method bias (CMB), measures for different constructs were collected from

different sources. To check for non-response bias, a test was carried out to determine whether there were differences between respondents in the first quartile and those in the last quartile on variables related to the research hypothesis. The mean values of respondents in the first quartile were compared with those of respondents in the last quartile using a t-test. The results of the t-test showed no significant difference between the means of the items in the two groups, indicating that non-response bias should not be an issue in this research. Then, the non-response bias test by age and gender of the respondents was analyzed, and no significant differences were found between the responding and non-responding respondents. Later, a two-tailed test was conducted to check the difference between the two proportions of the initial and effective sample. The results of the test (based on z-scores) showed that there were no significant differences between the proportions of the initial sample and the effective sample. A total of 540 respondents participated in this survey. 49.3% of men and 50.7% of women completed the survey. The age distribution of respondents was 18–24 – 10.4%, 25–34 – 20.2%, 35–44 – 21.1%, 45–54 – 23.0%, 55–65 – 25.4%. Most of the respondents (N = 253) had a university degree. The perception of the respondents' financial living situation was measured and most of respondents (N = 335) indicated that they lived like most Lithuanian people.

Measures

According to Saunders et al. (2019), the design and testing of the data collection instrument are very important aspects. To ensure that the questions and answers were clear to the respondents and to explore the scale of dissonant information, a pilot study was carried out. According to Johanson and Brooks (2010), before using a newly developed scale, researchers need to make sure that the scale is clearly and appropriately constructed, that there are no obvious errors, and that it has appropriate psychometric properties. According to Isaac and Michael (1995), a sample of 10–30 respondents is appropriate for a pilot study. In the pilot study, 15 questionnaires were collected to ensure the validity of the survey instrument.

According to Gray (2021), questionnaires and standardized measurement tools are data collection instruments in a quantitative approach. Questionnaires are a particularly suitable tool for obtaining quantitative data (Walliman, 2021). For construct measurement, previously developed and validated scales were used. *Dissonant information* was created by authors in the context of green and materialistic values, with 5 items. Example items are: "I encounter information about the negative environmental impact of consumption", and "I notice visual information about polluted oceans, forests, nature and the environment". The pilot study showed good reliability and validity of the scale. *Environmental knowledge* was measured with three items using Mostafa's (2007) environmental knowledge scale. Example items are: "I know more about recycling than the average person" and "I understand the environmental phrase and symbols on product package". To measure *social norms*, Thøgersen's (2006) four-item social norms scale was used. An example item is: "I believe that most of my acquaintances expect that I source-separate my green kitchen waste for composting". *Impulsive buying* was measured with 17 items using Verplanken's and Herabadi's (2001) impulsive buying scale. The cognitive dimension of impulsive buying was measured with 7 items, and the affective dimension of impulsive buying was measured with 10 items using the same Verplanken's and Herabadi's (2001) impulsive buying scale. Example items are: "Before I buy something, I always carefully consider whether I need it" and "If I see something new, I want to buy it". *Mindfulness* was measured with 15 items using Brown and Ryan's (2003) mindful attention and awareness scale. Example items are: "I find it difficult to stay focused on what's happening in the present" and "It seems I am "running on automatic," without much awareness of what I'm doing". *A social desirability* scale was included in the questionnaire to check for common method bias. To measure social desirability, Stöber's (2001) 16-item social desirability scale was used. For example, items of the social desirability scale are: "I sometimes litter", and "I always admit my mistakes openly and face the potential negative consequences". In line with Furchheim et al. (2020), *materialistic values* were measured using Richins' (2004) material value scale with 9 items, and *green values* were measured with 6 items using Haws et al.'s (2014) green consumption values scale. For example, items of the material value scale are: "Buying things gives me a lot of pleasure" and "I like to own things that impress people". An example item of the green consumption values scale is: "I consider the

potential environmental impact of my actions when making many of my decisions". All scale items were measured on a scale from 1 to 7, where 1 means "I strongly disagree" and 7 means "I strongly agree." The green and materialistic values conflict was calculated using Furchheim et al. (2020) formula.

Data analysis

Data analysis was performed with the SPSS software. Before the analysis, reversed items were recoded. Data was checked for missing values and outliers. Multivariate outliers (extreme combination of values on two or more variables) were identified using the Mahalanobis distance. According to Meyers et al. (2013), a common procedure used to identify multivariate outliers is to use the Mahalanobis distance. In total, 10 multivariate outliers were identified and excluded from the dataset for further analysis.

The common method bias was tested by Harman's one-factor test using exploratory factor analysis. According to Kock et al. (2021), common method bias is presented if exploratory factor analysis, with all research variables included, results in one factor accounting for more than 50% of the variance. In this data analysis, common method bias is not presented because Harman's single-factor test results showed that one factor accounted for 18.53% of the variance, i.e., less than 50%.

Exploratory factor analysis was made to determine a set of latent factors that represent a set of indicators. In addition, exploratory factor analysis identifies issues with cross-loadings when items are loading on multiple factors. Exploratory factor analysis using the principal component method with Oblimin rotation was used for analyzing the factor structure and relationship between items included in the scale. The Kaiser–Meyer–Olkin (KMO) value of all constructs was = 0.904, above 0.6, indicating that the criteria of sampling adequacy were met. The Bartlett test of sphericity is statistically significant (P < 0.05), showing that the correlation matrix is statistically different from an identity matrix as desired. The exploratory factor analysis identified 11 components explaining 61.62% of the total variance. Items that belonged to multiple factors were removed, as recommended by Farrell and Rudd (2009) that cross-loaded items should be removed from further analysis to improve the model fit.

Table 1. *KMO and the Bartlett test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.904
Bartlett Test of Sphericity	Approx. Chi-Square	16 573.188
	df	1711
	Sig.	< 0.001

The results of the revised exploratory factor analysis showed a higher Kaiser–Meyer–Olkin (KMO) value = 0.907; the Bartlett test of sphericity was statistically significant *(P* < 0.05); and the solution was based on 8 factors as expected, explaining a total of 65.82% of the variance, while individually components explained 21.92%, 15.20%, 7.15%, 5.76%, 7.41%, 4.09%, 3.54%, 2.72% of the variance. Internal consistency was validated by calculating Cronbach's alpha to verify the accuracy and reliability of the instrument. An appropriate value for Cronbach's alpha is > 0.7 (Shrestha, 2021). The components of cognitive impulsive buying, green values, dissonant information, affective impulsive buying, mindfulness, materialistic values, social norms, and environmental knowledge showed Cronbach's alpha values ranging from 0.79 to 0.92, indicating the reliability of the questionnaire instrument. The Cronbach's alpha coefficient of the components with an overall scale reliability of 0.80 > 0.7 indicates that the variables are correlated with their component groups and are, therefore, internally consistent. According to Shrestha (2021), "the convergent validity is established when the average variance extracted is ≥ 0.5". The average variance extracted (AVE) values for the components of impulsive buying, green values, dissonant information, affective impulsive buying, mindfulness, materialistic values, social norms, and environmental knowledge ranged from 0.50 to 0.67. AVE values ≥ 0.5 confirm the convergent validity (Fornell and Larcker, 1981). According to Shrestha (2021), the composite reliability value must be higher than 0.7. The composite reliability (CR) values for the cognitive impulsive buying, green values, dissonant information, affective impulsive buying, mindfulness, materialistic values, social norms, and environmental knowledge components ranged from 0.78 to 0.91, indicating the internal consistency of the items. AVE values ≥ 0.5 and composite reliability values > 0.7 determined the convergent reliability.

Table 2. *Values of Cronbach's alpha, AVE, and CR*

Constructs	N (of items)	Items	Factor Loadings	Reliability (Cronbach's alpha)	AVE	CR	Factor Loadings
Component 1: Cognitive impulsive buying	7	Q2r1	0.67	0.88	0.54	0.89	0.62–0.81
		Q2r2	0.78				
		Q2r3	0.80				
		Q2r4	0.80				
		Q2r5	0.62				
		Q2r6	0.64				
		Q2r7	0.81				
Component 2: Green values	6	Q7r1	0.72	0.91	0.63	0.91	0.72–0.82
		Q7r2	0.83				
		Q7r3	0.82				
		Q7r4	0.80				
		Q7r5	0.72				
		Q7r6	0.80				
Component 3: Dissonant information	5	Q4r1	0.74	0.92	0.67	0.91	0.74–0.85
		Q4r2	0.83				
		Q4r3	0.85				
		Q4r4	0.84				
		Q4r5	0.84				
Component 4: Affective impulsive buying	6	Q2r8	0.78	0.88	0.53	0.87	0.63–0.80
		Q2r9	0.80				
		Q2r14	0.63				
		Q2r15	0.78				
		Q2r16	0.69				
		Q2r17	0.67				
Component 5: Mindfulness	6	Q1r7	0.80	0.85	0.54	0.87	0.62–0.79
		Q1r8	0.73				
		Q1r9	0.71				
		Q1r10	0.78				
		Q1r14	0.75				
		Q1r15	0.62				
Component 6: Materialistic values	5	Q6r1	0.64	0.80	0.50	0.84	0.63–0.81
		Q6r3	0.81				
		Q6r4	0.63				
		Q6r6	0.78				
		Q6r9	0.69				
Component 7: Social norms	4	Q5r1	0.71	0.79	0.53	0.82	0.68–0.77
		Q5r2	0.78				
		Q5r3	0.68				
		Q5r4	0.75				
Component 8: Environmental knowledge	3	Q3r1	0.80	0.81	0.55	0.78	0.66–0.79
		Q3r2	0.75				
		Q3r3	0.66				

According to Farrell and Rudd (2009), "discriminant validity is the extent to which latent variable A discriminates from other latent variables (e.g., B, C, D)" (p. 5). Discriminant validity was supported because the average variance extracted (AVE) for each construct was greater than its shared variance with any other construct. After the exploratory factor analysis, green and materialistic values conflict were calculated following Furchheim et al. (2020). In SPSS, green and materialistic value conflict was calculated like this: Value conflict = (Green values + materialistic values)/2 – ABS (green values – materialistic values). Value conflict values ranged from –2 to 6.25. As expected, value conflict was positively and significantly correlated with green values (r = 0.150, $P < 0.001$), materialistic values (r = 0.717, $P < 0.001$), cognitive impulsive buying (r = 0.121, $P < 0.001$), affective impulsive buying (r = 0.334, $P < 0.001$), social norms (r = 0.121, $P < 0.001$) and negatively and significantly correlated with mindfulness (r = –0.220, P < 0.001). The correlation technique showed that green values were negatively and significantly correlated with cognitive impulsive buying (r = –0.241, $P < 0.001$) and positively and significantly correlated with dissonant information (r = 0.480, P < 0.001), social norms (r = 0.456, P < 0.001) and environmental knowledge (r = 0.448, P < 0.001). Materialistic values were positively and significantly correlated with cognitive impulsive buying (r = 0.187, $P < 0.001$) and affective impulsive buying (r = 0.439, $P < 0.001$) and negatively and significantly correlated with mindfulness (r = –0.290, $P < 0.001$) and environmental knowledge (r = –0.108, $P < 0.001$). According to Barger (2002), responses are socially desirable when there is a strong correlation between the social desirability variable and other variables. In this research, the correlation between the social desirability variable and other variables is weak, so the respondents' answers are not socially desirable.

Table 3. *Mean, standard deviation, and correlation*

Variable	Mean (M)	SD	1	2	3	4	5	6	7	8	9	10
1. Cognitive impulsive buying	2.75	1.04	1									
2. Green values	4.55	1.18	–0.241**	1								
3. Dissonant information	5.08	1.10	–0.322**	0.480**	1							
4. Affective impulsive buying	3.02	1.25	0.472**	–0.018	–0.033	1						
5. Mindfulness	5.49	0.87	–0.288**	0.062	0.014	–0.404**	1					
6. Materialistic values	3.68	1.20	0.187**	–0.079	–0.052	0.439**	–0.290**	1				
7. Social norms	3.54	1.32	–0.103*	0.456**	0.249**	0.108*	–0.008	–0.042	1			
8. Environmental knowledge	4.55	1.16	–0.297**	0.448**	0.548**	–0.111*	–.128**	–0.108*	0.342**	1		
9. Values conflict	2.61	1.59	0.121**	0.150**	–0.058	0.334**	–0.220**	0.717**	0.121**	0.016	1	
10. Social desirability	1.41	0.143	0.085	–0.134**	–0.039	–0.079	0.006	–0.063	–0.176**	–0.097*	–0.100*	1

***Correlation is significant at the 0.01 level (2-tailed).*

**Correlation is significant at the 0.05 level (2-tailed).*

Results and Discussion

Multiple regression analysis was conducted to test the hypotheses and assess the effect of antecedents on the conflict between green and materialistic values. All antecedents and value conflict variables were measured on interval scales. According to Gray (2021), multiple regression is used when multiple dependent variables and one dependent variable are included in the analysis. In the multiple regression model, green and materialistic value conflict was the dependent variable, and cognitive impulsive buying, affective impulsive buying, dissonant information, mindfulness, social norms, and environmental knowledge were independent variables. As the model summary in Table 4 shows, the multiple correlation (R) is 0.378 with an R Square value of 1.43, suggesting that the predictor variables explain 14.3% of the variance of the green and materialistic value conflict. In regression analysis, the r-square value shows the percentage of variation in the dependent variable that is explained by the independent variables (Gray, 2021).

Table 4. *Model summary*

R	R square	Adjusted R Square	Std. Error of the Estimate
0.378	0.143	0.133	1.47983

The results in Table 5 indicate the ANOVA statistics (F = 14.570) and the P value (Sig = 0.000); the model is statistically significant at the 0.001 probability level.

Table 5. *ANOVA results*

	Sum of Squares	df	Mean Square	F	Sig.
Regression	191.438	6	31.906	14.570	< 0.001
Residual	1145.314	523	2.190		
Total	1336.752	529			

Multicollinearity testing was performed in this research. Two values related to multicollinearity are given: Tolerance and VIF (Variance Inflation Values). According to Gray (2021), Tolerance and VIF values are related to each other, so it is sufficient to specify one of them (e.g., VIF). If the VIF values are high (greater than 10), this indicates that multicollinearity may be present. The multicollinearity test revealed that there was no correlation between multiple independent variables in the regression model, as the variance inflation factor (VIF) was below the value of 10. The coefficients in Table 6 show that 3 of the predictors in the model were statistically significant in this model: dissonant information, affective impulsive buying, and mindfulness.

- When controlling for the other predictors in the model, an increase of one unit of dissonant information is expected to be associated with a 0.203 unit decrease in the green and materialistic value conflict.
- When controlling for the other predictors in the model, an increase of one unit of affective impulsive buying is expected to be associated with a 0.403-unit gain in the green and materialistic value conflict (H4b hypothesis is supported).
- When controlling for the other predictors in the model, an increase of one unit of mindfulness is expected to be associated with a 0.224 unit decrease in the green and materialistic values conflict (H5 hypothesis is supported).

The results of the analysis showed, as expected, that the effect of affective impulsive buying on the green and materialistic value conflict was significant and positive, showing that affective impulsive buying reinforces the value conflict. As hypothesized, mindfulness has a significant and negative impact on the green and materialistic value conflict, revealing that mindfulness reduces the green and materialistic value conflict. Dissonant information has a significant and negative effect on the green and materialistic values, showing that dissonant information reduces the conflict between values. However, multiple regression analysis revealed that environmental knowledge, social norms, and cognitive impulsive buying had no statistically significant effect on the green and materialistic value conflict. According to Gray (2021), "if, for example, the statistical analysis does not reach significance, this itself is a finding".

This work aimed to determine the antecedents of the green and materialistic value conflict. This paper explored the effect of antecedents on the green and

Table 6. *Coefficients*

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
Dissonant information	–0.203	0.072	–0.141	–2.808	**0.005**	–0.345	–0.061	0.650	1.537
Environmental knowledge	0.130	0.070	0.095	1.866	0.063	–0.007	0.267	0.630	1.588
Social norms	0.097	0.053	0.081	1.839	0.066	–0.007	0.200	0.853	1.173
Affective impulsive buying	0.403	0.063	0.316	6.388	**< 0.001**	0.279	0.527	0.671	1.490
Cognitive impulsive buying	–0.109	0.076	–0.072	–1.440	0.150	–0.259	0.040	0.662	1.510
Mindfulness	–0.224	0.082	–0.123	–2.738	**0.006**	–0.385	–0.063	0.815	1.227
Constant	3.023	0.697		4.339	< 0.001	1.654	4.391		

materialistic value conflict. Prior research was focused on value conflict consequences but did not examine the antecedents of the conflict of values. This research extends the literature on the conflict of values by adding new knowledge on the relatively under-researched antecedents of the green and materialistic value conflict. Based on the existing literature, a conceptual model was developed in which dissonant information, environmental knowledge, social norms, and cognitive and affective impulsive buying have a positive effect, while mindfulness has a negative effect on the conflict between green and materialistic values.

Research results showed that only affective impulsive buying had a positive effect on the green and materialistic value conflict; no statistically significant effect of cognitive impulsive buying on the value conflict was found. This means that effective impulsive buying reinforces the green and materialistic value conflict. The results do not support previous research by Amr Yassen and Soares (2021), who have found that cognitive impulsive buying has a significant effect on cognitive dissonance, but affective impulsive buying does not. However, this research did not focus on cognitive dissonance but on value conflict. As expected, the findings showed that mindfulness had a negative impact on the green and materialistic value conflict, which means that mindfulness reduces the green and materialistic value conflict. Our findings support Ericson et al.'s (2014) findings that mindfulness is related to a clearer understanding of values. When consumers have a clearer understanding of values, it helps them to avoid conflicting values, which in turn helps to avoid psychological stress.

However, the results showed that social norms and environmental knowledge do not impact the conflict between green and materialistic values. The average scores for green and materialistic values can partly explain these results. According to Polonsky et al. (2014), environmental knowledge leads to internal conflict among consumers of materialistic values. The respondents in the research were more green consumers than materialists. While the expected finding was that dissonant information had a positive effect on the green and materialistic value conflict, research results showed that dissonant information had a negative effect on the green and materialistic value conflict, which means that dissonant information reduces the conflict between values. These results also can partly be explained by the scores of means for green and materialistic values. The score of the mean of green values is 4.55, and the score of the mean of materialistic values is 3.68. Correlation analysis results showed that green values had a significant positive correlation with dissonant information ($r = 0.480$, $P < 0.001$), while materialistic values had a non-significant negative correlation with dissonant information ($r = –0.052$, $P > 0.05$). Dissonant information can lead to the conflict between cognitions when it conflicts with beliefs or values. For green consumers, information about the negative environmental impacts of consumption is not dissonant.

Conclusions

In the context of consumer behavior, our research has shown that mindfulness and impulsive buying act as antecedents of the conflict between green and materialistic values, influencing this value conflict. This research contributes to the academic discourse on consumer materialism and green consumption by providing a deeper understanding of the value conflict experienced by both materialistic and green consumers. This research contributes to the existing literature with new knowledge on the antecedents of the conflict between consumers' green and materialistic values.

This research contributes to value conflict literature by showing that impulsive buying reinforces the conflict between green and materialistic values, while mindfulness reduces it. In addition, this work contributes to research on well-being by showing that more mindful consumers are less likely to experience conflict between green and materialistic values. These results show the importance of mindfulness in societies where green and materialistic values are very important for consumers. Our work could be useful for non-profit organizations seeking to promote green consumption and consumer well-being. Social marketing organizations working for social change can use these results to educate consumers about value conflicts and their antecedents. Such education can empower consumers to become aware of the challenges that can sometimes complicate consumption decisions. The results of the study, which show that mindfulness reduces value conflicts, can be used to promote consumer mindfulness, and thereby improve consumer well-being. This study extends the literature on value conflicts by adding new knowledge on the relatively under-researched antecedents of green and materialistic value conflicts.

Some limitations should be mentioned. Firstly, since values evolve over a longer period of time, the nature of the data does not allow for a direct test of causal effects between constructs. Secondly, this research was conducted in one country – Lithuania – so the results cannot be applied to other cultures or countries. Future quantitative research could be carried out in different countries. Thirdly, the analysis of the data showed that the respondents in this research had a higher mean score for green values (4.55) than for materialistic values (3.68). This indicates that respondents are more green consumers than materialists.

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Research instrument

Construct	Items	Authors
Mindfulness	1. I could be experiencing some emotion and not be conscious of it until some time later. 2. I break or spill things because of carelessness, not paying attention, or thinking of something else. 3. I find it difficult to stay focused on what's happening in the present. 4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way. 5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention. 6. I forget a person's name almost as soon as I've been told it for the first time. 7. It seems I am "running on automatic," without much awareness of what I'm doing. 8. I rush through activities without being really attentive to them. 9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there. 10. I do jobs or tasks automatically, without being aware of what I'm doing. 11. I find myself listening to someone with one ear, doing something else at the same time. 12. I drive places on 'automatic pilot' and then wonder why I went there. 13. I find myself preoccupied with the future or the past. 14. I find myself doing things without paying attention. 15. I snack without being aware that I'm eating.	Brown and Ryan (2003)

Cognitive impulsive buying	1. I usually think carefully before I buy something 2. I usually only buy things that I intend to buy 3. Most of my purchases are planned in advance 4. I only buy things that I really need 5. It is not my style to just buy things 6. like to compare different brands before I buy one 7. Before I buy something, I always carefully consider whether I need it	Verplanken and Herabadi (2001)
Affective impulsive buying	8. It is a struggle to leave nice things I see in a shop 9. I sometimes cannot suppress the feeling of wanting things I see in shops 10. I sometimes feel guilty after having bought something 11. I am not the kind of person who falls in love at first sight with things I see in shops 12. I can become very excited if I see something I would like to buy 13. I always see something nice whenever I pass by shops 14. I find it difficult to pass up a bargain 15. If I see something new; I want to buy it 16. I am a bit reckless in buying things 17. I sometimes buy things because I like buying things, rather than because I need them	Verplanken and Herabadi (2001)
Social norms	1. I believe that most of my acquaintances expect that I source-separate my green kitchen waste for composting 2. I believe that most of my acquaintances expect that I choose organic milk instead of conventional 3. I believe that most of my acquaintances expect that I use energy saving light bulbs wherever it is possible 4. I believe that most of my acquaintances expect that I take the bus or train to work and shopping if the choice is between bus or train and my own car	Thøgersen (2006)
Environmental knowledge	1. I know more about recycling than the average person. 2.I understand the environmental phrases and symbols on the product package 3.I am very knowledgeable about environmental issues	Mostafa (2007)
Dissonant information	1. I am faced with information on the negative environmental impact of consumption 2. I see visual information about polluted oceans, forests, nature, and the environment. 3. I see information about the negative effects of consumption on animals. 4. I am faced with information about environmental problems. 5. I am faced with information about the harms of consumerism.	Authors
Green values	1. It is important to me that the products I use do not harm the environment. 2. I consider the potential environmental impact of my actions when making many of my decisions. 3. My purchase habits are affected by my concern for our environment. 4. I am concerned about wasting the resources of our planet. 5.I would describe myself as environmentally responsible. 6.I am willing to be inconvenienced in order to take actions that are environmentally friendly.	Haws et al. (2014)
Materialistic values	1. I admire people who own expensive homes, cars, and clothes. 2. Buying things gives me a lot of pleasure. 3. My life would be happier if I owned certain things I don't have. 4. The things I own say a lot about how well I'm doing in life. 5. I try to keep my life simple, as far as possessions are concerned. (reversed) 6. I'd be happier if I could afford to buy more things. 7. I like to own things that impress people. 8. I like a lot of luxury in my life. 9. It sometimes bothers me quite a bit that I can't afford to buy all the things that I'd like.	Richins (2004)