

Article

50 Shades of Green: Insights into Personal Values and Worldviews as Drivers of Green Purchasing Intention, Behaviour, and Experience

Marjolein C. J. Caniëls ^{1,*} , Wim Lambrechts ¹ , Johannes (Joost) Platje ² , Anna Motylska-Kuźma ²  and Bartosz Fortuński ³ 

¹ Faculty of Management, Open Universiteit, 6419 AT Heerlen, The Netherlands; wim.lambrechts@ou.nl

² Wyższa Szkoła Bankowa We Wrocławiu, WSB University in Wrocław, Fabryczna 29–31, 53-609 Wrocław, Poland; johannes.platje@wsb.wroclaw.pl (J.P.); anna.motylska-kuzma@wsb.wroclaw.pl (A.M.-K.)

³ Faculty of Economics, Opole University, Ozimska 46a, 45-058 Opole, Poland; b.fortunski@uni.opole.pl

* Correspondence: marjolein.caniels@ou.nl



Citation: Caniëls, M.C.J.; Lambrechts, W.; Platje, J.; Motylska-Kuźma, A.; Fortuński, B. 50 Shades of Green: Insights into Personal Values and Worldviews as Drivers of Green Purchasing Intention, Behaviour, and Experience. *Sustainability* **2021**, *13*, 4140. <https://doi.org/10.3390/su13084140>

Academic Editor: Flavio Boccia

Received: 12 March 2021

Accepted: 2 April 2021

Published: 8 April 2021

Abstract: Despite the booming interest in determinants of green (i.e., sustainable) consumption, the psychological factors that influence pro-environmental consumption patterns are not yet fully understood. To answer this call, we developed and analysed a model that offers an integrative approach to sustainable consumption patterns by addressing the full palette of consumers' personal value orientations. Specifically, we linked consumers' egoistic, altruistic, and biospheric values at the personal level to pro-environmental purchasing intentions, behaviours, and experiences. Furthermore, we examined whether implicit beliefs about the balance between humanity and nature (i.e., worldviews) moderate these relationships. To support the theoretical propositions in our model, we drew on the key premises of the theory of planned behaviour. Data from 291 Polish respondents were analysed by using multiple linear regression analysis, and the moderating effect of worldviews was investigated with simple slope analysis. While controlling for cultural values, the findings show that personal values, specifically biospheric values, predict sustainable consumer patterns and that consumers' worldview moderates this relationship. Our study offers a novel holistic approach to analyse sustainable consumption patterns, which will assist environmental management scholars and practitioners who seek to understand and stimulate pro-environmental consumer behaviour. Our findings may help practitioners to develop strategies to influence consumer intentions and behaviours concerning green products.

Keywords: green purchasing; New Ecological Paradigm; worldview; value orientations; sustainability; environmental concerns

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Sustainable consumption and production is one of the United Nations' Sustainable Development Goals [1]. Sustainable consumption refers to consumption choices that are made by consumers who are considering environmental issues during their purchase decision. When engaging in sustainable consumption, consumers assess whether products are benevolent to the environment, recyclable or conservable, and responsive to ecological concerns [2,3]. In other words, sustainable consumption reflects pro-environmental behaviour of consumers. A variety of studies have addressed issues of sustainable consumption. For example, studies have profiled consumers [4] or executed consumer segmentation studies derived from market research approaches [5–7]. However, environmental issues are complex, and their impact is difficult to measure [8]. In the literature, several factors are identified that influence the ability and willingness to engage in sustainable consumption patterns [9]. However, in daily practice pro-environmental purchasing behaviour has not

increased extensively, and numerous studies have documented the attitude–behaviour gap [10] or value–action gap [11]. This gap between consumers’ attitudes or values on the one hand and their actual behaviour on the other hand points towards the need to unravel the psychological factors of sustainable consumption [7,10].

Over the past years, studies have increasingly stressed the role of psychological factors in green purchasing behaviour (e.g., [12–14]) and positive environmental behaviours [15,16]. Drawing on the theory of planned behaviour [17], which links subjective norms to behaviours, studies have shown that certain personal value orientations are positively related to green buying behaviours [2,12,13]. Personal value orientations capture the importance that individuals attach to certain general values and the extent to which individuals adhere to these values as guiding principles in their lives [18]. Three types of values have been associated with pro-environmental behaviour: egoistic (threats to oneself), social–altruistic (threats to others), and biospheric (threats to nature or the environment) [18]. Most studies about pro-environmental purchasing behaviour address either egotistic values [13], biospheric values [12], or altruistic values [2] in isolation, or lump these values together in one broad category, making no clear distinction between types of values (e.g., [19]). As a consequence, several studies point out the need for a more integrative approach that addresses the full palette of consumers’ personal value orientations in connection to sustainable consumption patterns (e.g., [12,13,20]).

Consumers nowadays are more aware of environmental issues than ever before. They have a positive attitude towards environmental protection [10,21] and expect companies to engage in pro-environmental conduct (e.g., [21]). This pro-environmental awareness could also affect their (daily) consumption patterns [4]. Related to this trend, studies have investigated individuals’ implicit beliefs about the impact of humanity on the environment [22,23]. Implicit beliefs capture the mental associations of individuals connected to the balance between humanity and nature or, in short, their worldview. It is expected that consumers’ worldview on the balance between humanity and environment may interact with their value orientations and therefore may influence the relationship between value orientations and sustainable consumption patterns.

The underlying study will answer to this call for a more comprehensive approach to sustainable consumption. The aim of our study is to develop and test a model that links consumers’ general values at the personal level (egotistic, altruistic, and biospheric) to pro-environmental purchasing intention, behaviour, and experience. Furthermore, we examine whether beliefs about the balance between humanity and nature (worldviews) moderate this relationship. As previous studies have shown, with the additional influence of cultural values on sustainable consumption patterns, such as collectivism (e.g., [13,24]), we have controlled for this cultural value as well. To address the study objectives, data from 291 Polish respondents were gathered and analysed by using multiple linear regression analysis. The moderating effect of implicit beliefs was examined with simple slope analysis.

We contribute to the existing literature in an important way. Studies have indicated the need for more integrative and comprehensive approaches to modelling pro-environmental behaviour [25,26]. We address this need by incorporating all three personal values in our study of sustainable consumption patterns, while controlling for the cultural value of collectivism. By adding an investigation of the role of people’s implicit beliefs about the value of the natural world and their relationship to it, we deepen current understanding about mechanisms that influence sustainable consumption patterns, and we provide insights about the complex interplay of personal values and implicit beliefs against this backdrop. Our study offers a novel holistic approach to analyse sustainable consumption patterns, which will assist environmental management scholars and practitioners who seek to understand and stimulate pro-environmental consumer behaviour. Our findings may help practitioners to develop strategies to influence consumer intentions and behaviours concerning green products.

The remainder of this article is structured as follows. First, we discuss the theoretical background of our study by reviewing the literature about pro-environmental consumer

behaviour and sustainable consumption patterns. The literature gives rise to several hypotheses (Section 2). Subsequently, we will provide insight into the methods that were used to gather and analyse the data (Section 3). In Section 4, we present the results of our analyses. Then, we discuss our findings and present theoretical implications (Section 5) as well as practical implications (Section 6). Limitations to our study are presented in Section 7. Section 8 provides overall conclusions of our study.

2. Literature Review and Hypothesis Development

2.1. Pro-Environmental Consumer Behaviour

The literature has used the terms “green”, “sustainable”, and “pro-environmental” interchangeably to refer to behaviour of consumers that has a positive impact on the environment [2]. Among others, this behaviour encompasses consumers’ attitudes towards green products [27], intention to buy green products [13,27], and actual experience with buying green products [27] or their green purchase behaviour [2,12]. An example of pro-environmental consumer behaviour is when a consumer makes a purchase decision based on his or her assessment of the recycling strategy that can be used for a specific product, or the impact of its ingredients on the environment [28].

Prior research has shed light on the link between pro-environmental consumer behaviour and value orientations in a fragmented way. Some studies have focused on the effect of one specific value orientation, while abstracting from others (e.g., [13]). This approach does not allow for comparing values within one study. Other studies have aggregated all value orientations into one category (e.g., [19]), which again limits the possibility to draw conclusions about separate value orientations. However, other studies have explored the influence of values on intentions (e.g., [29,30]) rather than actual behaviours. Despite addressing different values within one study, the focus is on consumer intentions instead of actual behaviour. In conclusion, all these studies only provide partial explanations for pro-environmental consumer behaviour.

2.2. Effect of Consumers’ Value Orientations on Sustainable Consumption Patterns

Personal value orientations have been central to social sciences in explaining people’s motivations and behaviours. For example, based on an empirical study across 44 countries, Schwarz [31] proposed 10 types of basic human values, including self-direction, stimulation, universalism, benevolence, tradition, conformity, security, power, achievement, and hedonism. These values present universal aspects in human nature that motivate behaviour and have been recently integrated with the theory of planned behaviour (TPB [17]) by Ahmad and colleagues [32] (see also [33]). Values are considered to be relatively stable over time, and they are believed to affect various attitudes, intentions, and behaviours [34]. In a seminal paper, Stern and Dietz [18] theorised that certain value orientations are related to pro-environmental attitudes and behaviours. They distinguished egoistic (threats to oneself), social-altruistic (threats to others), and biospheric (threats to nature or the environment) value orientations [18]. Each of these three values is likely to be related to sustainable consumption patterns, including pro-environmental purchasing intentions, behaviours, and experiences as will be explained in the following.

Egoism captures the extent to which individuals are oriented at self-enhancement, maximising their own welfare [35]. Egoism suggests a purely economic rationale (i.e., individuals are motivated by self-interest and try to maximise their own well-being). Such an orientation is likely to be negatively correlated to pro-environmental behaviour because self-enhancement is geared towards attaining immediate individual gains, which generally conflicts with the long-term benefits of pro-environmental behaviour [36,37]. Studies also show that egoism is related to lower willingness to engage in pro-environmental behaviour (e.g., not willing to pay taxes (or a price premium) for environmentally friendly products, or not willing to engage in pro-environmental (political) action) [38]. However, the findings in the literature are mixed. Several studies have argued that egoism may be positively related to pro-environmental behaviour, especially in cases when green products are perceived

to be healthier or safer than non-green products (e.g., [39,40]). Consumers may have health concerns for themselves or for their close family. An egoistic value orientation could be fuelled by such health concerns. It has been shown that health concern is one of the main factors that drive purchasing intentions of organic food [41]. However, by adopting the narrow definition of egoistic value orientation, we argue that consumers' egoistic value orientations are likely to be negatively related to sustainable consumption patterns, including green purchasing intention, behaviour, and experience.

Altruism refers to the degree to which individuals are concerned for the welfare of others [18,30,35]. When individuals are driven by altruistic values, they feel an emphatic concern for others without pursuing personal benefit [30]. This motivates them to take into account the impact of their actions on other people when deciding on behaving in a pro-environmental way or not [20]. With respect to pro-environmental consumer behaviour, Barbarossa and De Pelsmacker [42] found that green consumers adhere more to altruistic motives than non-green consumers. In a similar vein, it has been shown that altruistic values have an indirect relation to green purchase behaviour [2] and attitude [40]. For example, Wang and colleagues [37] indicated that altruism motivated daily energy-saving behaviours of urban residents in China. In a study about green cosmetics, Pop and colleagues [39] showed that altruism has a positive impact on consumers' attitude towards green cosmetics.

Individuals with a predominantly biospheric value orientation emphasise the importance of the environment and the biosphere [43]. Concerns about threats to nature have been shown to encourage environmental attitudes and feelings of moral obligation to help nature [44]. People engage in pro-environmental behaviours when they empathise with a suffering nature and are feeling protective of nature [44]. Similarly, prior studies have shown that especially altruistic and biospheric values are connected to green consumer behaviour [13,37,38,45]. For example, Nguyen et al. [12] demonstrated that biospheric values encourage active engagement in pro-environmental purchase behaviour by enhancing consumers' attitudes towards environmental protection. Consumers who endorse biospheric values are concerned about the impact of their own consumption pattern, for example, in terms of greenhouse gas emissions [46]. Furthermore, environmental awareness of consumers is related to pro-environmental consumption choices, such as choosing products that are made of recycled constituents and reduce waste [21].

On the basis of these studies, we hypothesise:

Hypothesis 1. *Consumers' egoistic value orientations will negatively influence their green purchasing (a) intention, (b) behaviour, and (c) experience.*

Hypothesis 2. *Consumers' altruistic value orientations will positively influence their green purchasing (a) intention, (b) behaviour, and (c) experience.*

Hypothesis 3. *Consumers' biospheric value orientations will positively influence their green purchasing (a) intention, (b) behaviour, and (c) experience.*

2.3. The Moderating Role of Worldviews

Consumers are believed to be more aware than ever before about how their consumption patterns may threaten the quality of the environment and sustainable development [21,47,48]. They are increasingly conscious about the potential devastating impact humanity has on the biosphere. In connection to this development, studies have investigated individuals' implicit beliefs about the impact of humanity on the quality of the environment [23,43], or worldview. Worldview taps into the beliefs of individuals about humanity's ability to upset the balance of nature. It assesses individuals' gut feelings and implicit beliefs about the relationship of humanity with nature [23]. Worldviews change only slowly over time, but changes in worldview usually have a large impact on society [49]. People with a pro-environmental worldview have been shown to be more interested in the quality of the environment and also more concerned about global warm-

ing [43]. Similarly, people with pro-environmental worldviews tend to undertake action to address environmental problems [43]. These studies assess the direct relationship between pro-environmental implicit beliefs and green behaviour, thereby largely overlooking the interplay between personal values and implicit beliefs.

There is a conceptual difference between personal values and implicit beliefs. Whereas personal values reflect the importance that individuals attach to certain values and they adhere to these as guiding principles in their lives, implicit beliefs capture the mental associations of individuals connected to the degree in which humanity is able to achieve sustainable growth in balance with natural resources [23]. For example, Sadiq, Paul, and Bharti [50] found that dispositional traits had an effect on green consumer behaviour in the sense that “optimistic” consumers engaged more in such behaviours, while “pessimistic” consumers did not. It is expected that personal values and implicit beliefs have an interacting effect on green consumer patterns because implicit beliefs may shape the intensity in which individuals adhere to personal values when engaging in green purchasing. In line with theorising in [38], we expect that a pro-environmental worldview will buffer a negative effect of egoism on green consumer patterns, and strengthen the positive effects of altruism and biospheric value orientations on green consumer patterns. Hence:

Hypothesis 4. *Consumers’ worldview will interact with their egoistic value orientation in such a way that the negative relationship between egoism and green purchasing (a) intention, (b) behaviour, and (c) experience will be buffered.*

Hypothesis 5. *Consumers’ worldview will interact with their altruistic value orientation in such a way that the positive relationship between altruistic and green purchasing (a) intention, (b) behaviour, and (c) experience will be enhanced.*

Hypothesis 6. *Consumers’ worldview will interact with their biospheric value orientation in such a way that the positive relationship between biospheric and green purchasing (a) intention, (b) behaviour, and (c) experience will be enhanced.*

Figure 1 summarises the hypothesised model of this study.

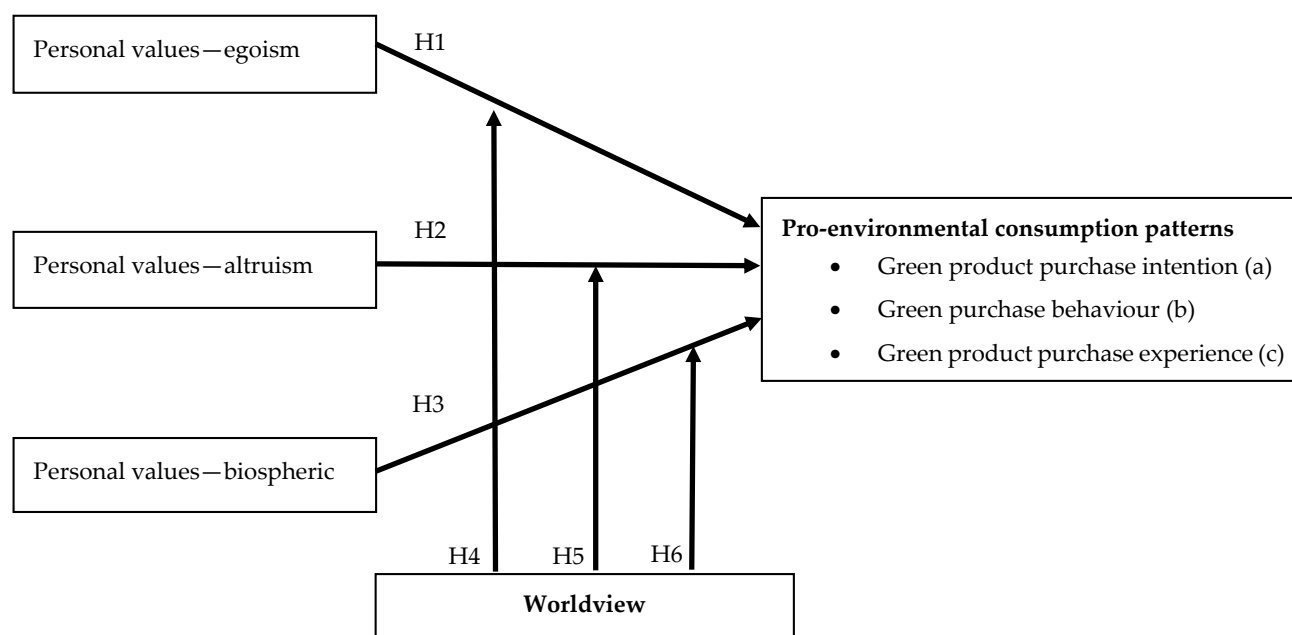


Figure 1. Research framework.

3. Methods

3.1. Data Collection, Sample, and Measurement

Data were collected from a sample containing 339 Polish business students, who were conceived of as being representative of Polish consumers, although our sample may have a higher average level of education and the mean age within our sample is likely to be lower than the average age of the Polish consumer. Surveys were self-administered.

We assessed sustainable consumption patterns among university students in Poland. This young population consists of current consumers, but they are also the future consumers. Their current pro-environmental purchasing intentions, behaviours, and experiences are essential to understand because they provide a glimpse into the future. The research was conducted in Poland because environmental awareness is still in its infancy in Poland. Of all European countries, Poland has the worst air quality. Polish energy policy chiefly relies on fossil fuels, and pro-ecological behaviour is still very unpopular in Poland [51]. According to the “Green Generation” survey conducted by the Mobile Institute, Polish consumers mainly pay attention to the price when shopping for groceries [52]. Consequently, it is especially interesting to investigate how young people in Poland make consumer choices and think about the environment.

Our data were gathered from university students in business management. It was a convenience sample, and consequently, we undertook several remedies to limit the risk of bias. Among others, we collected data at two different Polish universities and from students that followed different (management related) courses. In this way, we lowered the chance of under-representation of certain subgroups in our sample.

We were particularly interested in business students because of the unique properties of this population group. Pro-environmental attitude and behaviour of (business) students has been a topic of previous studies (e.g., [53–55]). Business students have been identified as being interested in successful and strategic business management and focused on profit making. Additionally, business students have been stereotyped as being slightly egoistic and “self-serving” [54]. However, other studies have challenged this negative typecasting and have shown that business students do show pro-environmental attitudes [54]. In fact, different subgroups (or segments) could be identified that display a varied range of sustainability dispositions [53]. This is why a sample containing business students was conceived of as suitable and interesting for studying values and worldviews in connection to sustainable consumption patterns.

The questionnaire began with an explanation of the purpose of the research and the assurance of strict confidentiality of the results. Participation was voluntary. Before disseminating the survey, we asked three subject-matter experts and one practitioner to reflect on the clarity of the questions as well as on the layout of the survey. Accordingly, we made small changes in the survey layout (order of the questions, line spacing, and font size) to improve the readability of the questionnaire.

The questionnaire consisted of two sections. In one section, we gathered data about the sociodemographic factors of the respondents (8 items) and control variables (5 items). The other section concentrated on gathering data about the core variables of our study. All measures used in this study stem from prior research and have previously demonstrated appropriate psychometric properties. Scales measuring green product purchase intention (3 items) and green product purchase experience (1 item) were taken from Rahimah and colleagues [27]. Actual green purchase behaviour (2 items) used the scale from Nguyen and colleagues [12]. The personal values scale (13 items) was adopted from De Groot and Steg [36], and worldview (15) was adopted from Dunlap and colleagues [23]. Answer categories followed the original published scales. The total number of items for this study was 47. Appendix A provides in-depth information about the properties of the used scales within our sample.

The questionnaire generated 291 valid responses (response rate of 85.8%). Fifty-three percent of the respondents were female; all respondents were following university-level courses. The average age of the respondents was 22.91 (SD = 4.57) years.

3.2. Analytical Strategy

To examine the hypothesised mediation effects, we conducted multiple linear regression analysis by using the R package Lavaan [56] and jtools [57]. This procedure is suitable for analysing the moderation effects in subsequent simple slope analysis. Furthermore, multiple linear regression analysis allowed us to clearly separate models with different outcome variables. Measures were mean-centred to eliminate some of the effects in case of multicollinearity. To evaluate whether multicollinearity was an issue in our data, we calculated the variance inflation factors (VIFs). All VIF values were below 10 (highest VIF was 1.97). Therefore, we conclude that our measures do not suffer from multicollinearity.

4. Results

Table 1 presents descriptive statistics and correlations of the main variables under investigation. As expected, we found medium to strong correlations (i.e., around 0.6) between different indicators of green purchasing behaviour. This indicates that pro-environmental intention, behaviour, and buying experience are associated with each other to a certain extent. We observed that the demographic variables had no substantial association with the core set of our variables, as all correlations were below 0.3. Following advice from Bernerth and Aguinis [58] that the inclusion of unnecessary control variables reduces statistical power and yields biased estimates, we left the demographic variables out of the regression analyses. In line with previous studies (e.g., [12]), we found that collectivism does show significant correlations with the core set of our variables. For example, collectivism is positively related to altruism, biospheric values, worldview, and the indicators of sustainable consumption. Hence, we used it as a covariate in the further analysis of the model.

Table 1. Means, standard deviations, and correlations ($n = 291$).

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Green purchase intention	4.01	1.56	(0.91)								
2. Green purchase behaviour	3.12	1.32	0.61 **	(0.91)							
3. Green product purchase experience	3.02	1.75	0.64 **	0.65 **	(0.91)						
4. General values—egoism	3.98	1.27	0.06	−0.04	0.04	(0.79)					
5. General values—altruism	5.42	1.32	0.24 **	0.15 *	0.12 *	0.10	(0.78)				
6. General values—biospheric	4.88	1.46	0.41 **	0.34 **	0.31 **	0.15 **	0.55 **	(0.80)			
7. Worldview (New Ecological Paradigm)	3.49	0.41	0.31 **	0.23 **	0.18 **	−0.10	0.28 **	0.32 **	(0.72)		
8. Collectivism	5.36	0.93	0.24 **	0.13 *	0.19 **	0.10	0.31 **	0.22 **	0.20 **	(0.81)	
9. Gender (male = 0)	0.53	0.50	0.08	0.03	0.01	−0.01	0.20 **	0.22 **	0.12 *	0	
10. Age in years	22.91	4.57	0.06	0.03	0.05	0.12 *	0.07	0.08	−0.02	0.05	−0.07

Note: M and SD are used to represent mean and standard deviation, respectively. * indicates $p < 0.05$. ** indicates $p < 0.01$. Each scale used its original anchors, meaning that variables 1, 2, 3, and 8 used a 7-point scale; variable 7 was measured on a 5-point scale; and variables 4, 5, and 6 used a 9-point scale; see Appendix A for details. Cronbach's alpha is between brackets on the diagonal for constructs with three or more items.

Prior to the moderation analyses, we tested a measurement model that specifies the relationships between the observed and the latent constructs to establish whether each measure loaded on the intended factor [59]. Each item loaded on the intended factor. To assess model fit, we examined the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI) and the Standardized Root Mean Square Residual (SRMR). Fit statistics showed an acceptable fit for the measurement model ($\chi^2 = 1277.690$; $df = 675$; $RMSEA = 0.055$; $CFI = 0.86$; $SRMR = 0.068$). A model grouping all measures into one factor showed a worse fit ($\chi^2 = 3355.382$; $df = 702$; $RMSEA = 0.114$; $CFI = 0.392$; $SRMR = 0.113$).

Table 2 shows the results of the regression analyses. Models 1, 2, 4, 5, 7, and 8 show the results for the linear regressions without the interaction effects. We found that biospheric value orientations are significantly related to green purchase intention (e.g., Model 1b = 0.41, $p < 0.01$), green purchase behaviour (e.g., Model 4b = 0.34, $p < 0.01$), and green purchase experience (e.g., Model 7b = 0.41, $p < 0.01$). These findings are in line with Hypothesis 3a–c. Additionally, egoism is weakly negatively related to green purchase behaviour (Model 4b = −0.11, $p < 0.1$). This suggests weak support for Hypothesis 1b.

Furthermore, the results show that altruism is weakly negatively related to green purchase experience (Models 7 and 8).

Table 2. Regression results including general worldview.

	Green Purchase Intention			Green Purchase Behaviour			Green Purchase Experience		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.78 (0.56)	−1.33 (0.83)	2.07 (3.69)	1.67 *** (0.50)	0.47 (0.74)	1.20 (3.23)	0.43 (0.66)	−0.61 (0.99)	1.77 (4.37)
General values egoism (GVEV)	−0.02 (0.07)	0.02 (0.07)	−0.68 (0.55)	−0.11 (0.06)	−0.09 (0.06)	−0.24 (0.48)	−0.02 (0.08)	−0.001 (0.08)	−0.13 (0.65)
General values altruism (GVAV)	−0.03 (0.08)	−0.06 (0.08)	0.83 (0.58)	−0.08 (0.07)	−0.09 (0.07)	1.64 *** (0.51)	−0.16 * (0.09)	−0.18 * (0.09)	1.34 * (0.69)
General values biospheric (GVBV)	0.41 *** (0.07)	0.36 *** (0.07)	−0.69 (0.62)	0.34 *** (0.06)	0.31 *** (0.06)	−1.56 *** (0.55)	0.41 *** (0.08)	0.39 *** (0.08)	−1.62 ** (0.74)
Worldview (NEP)		0.73 *** (0.22)	−0.24 (1.07)		0.42 ** (0.19)	0.23 (0.94)		0.36 (0.26)	−0.32 (1.27)
Collectivism	0.28 *** (0.09)	0.24 ** (0.09)	0.24 ** (0.09)	0.12 (0.08)	0.10 (0.08)	0.09 (0.08)	0.29 *** (0.11)	0.27 ** (0.11)	0.27 ** (0.11)
GVEV × NEP			0.20 (0.16)			0.04 (0.14)			0.03 (0.18)
GVAV × NEP			−0.25 (0.17)			−0.50 *** (0.15)			−0.43 ** (0.20)
GVBV × NEP			0.30 * (0.18)			0.53 *** (0.15)			0.57 *** (0.21)
Observations	291	291	291	291	291	291	291	291	291
Adjusted R ²	0.18	0.21	0.21	0.12	0.13	0.16	0.11	0.11	0.13
F statistic	16.66 *** (df = 4; 286)	16.10 *** (df = 5; 285)	10.73 *** (df = 8; 282)	10.72 *** (df = 4; 286)	9.63 *** (df = 5; 285)	8.04 *** (df = 8; 282)	9.81 *** (df = 4; 286)	8.27 *** (df = 5; 285)	6.23 *** (df = 8; 282)

Note: standard error between brackets, mean-centred variables. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. df refers to degrees of freedom.

Models 3, 6, and 9 show the effects of including the interaction between the value orientations and worldview. The relationship between biospheric values and green purchase intention is only very weakly moderated by worldview (Model 3b = 0.30, $p < 0.1$). The strongest interactions are shown for green purchase behaviour and green purchase experience. We found that worldview negatively moderates the relationship between altruism and green purchase behaviour (Model 6b = −0.50, $p < 0.01$), and positively moderates the relationship between biospheric values and green purchase behaviour (Model 6b = 0.53, $p < 0.01$). We see a similar pattern when looking at green purchase experience as the outcome variable (Model 9b = −0.43, $p < 0.05$; Model 9b = 0.57, $p < 0.01$).

To assess the interaction effects, we used simple slope analysis and plotted significant interaction effects. We tested the simple slopes for low (minus one times the standard deviation), moderate (mean), and high levels of worldview (plus one times the standard deviation). Figure 2a shows that higher altruism is linked to less green purchase behaviour for consumers with a pro-environmental worldview (green line). For consumers with a less pro-environmental worldview, we found a positive relationship between altruism and green purchase behaviour. Figure 2b shows that at high worldview levels, there is a strong positive relationship between biospheric value orientations and green purchase behaviour. The steep green line in Figure 2b shows that higher biospheric value orientation is linked to more green purchase behaviour among consumers with a pro-environmental worldview. In contrast, the flat red line in Figure 2b indicates that at low levels of worldview, the relationship between biospheric value orientation and green purchasing behaviour is less strongly positive. Similar results were found with respect to green purchase experience as an outcome variable (Figure 3a,b).

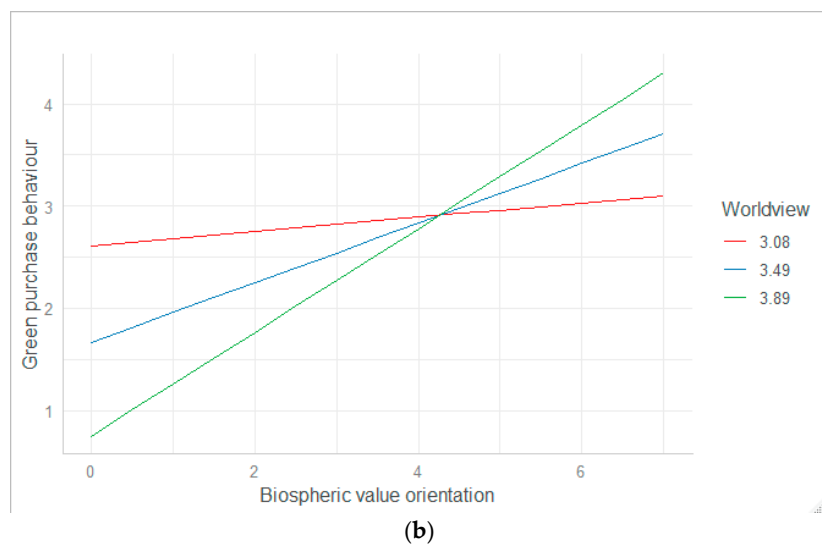
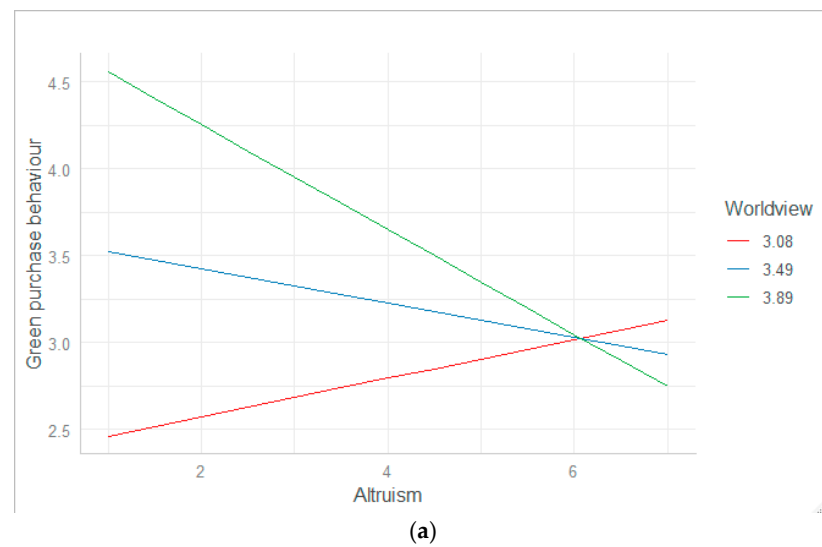


Figure 2. (a) Simple slope analysis, Model 6, altruism; (b) simple slope analysis, Model 6, biospheric value orientation.

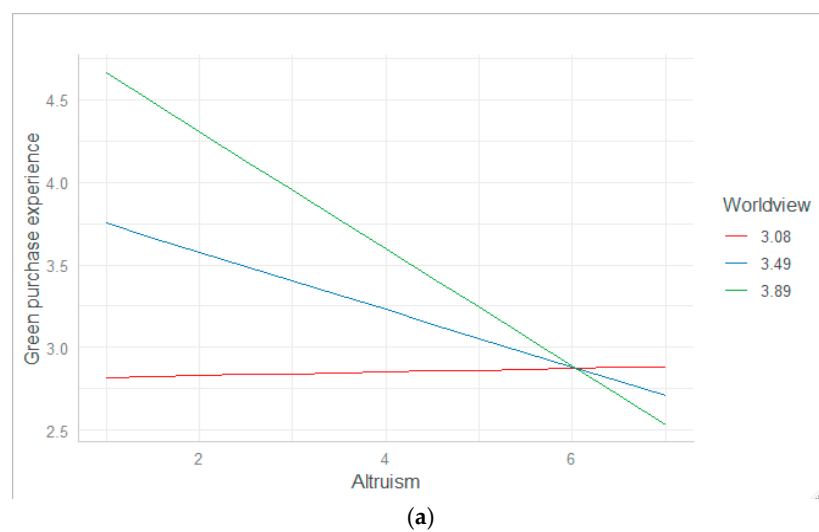


Figure 3. Cont.

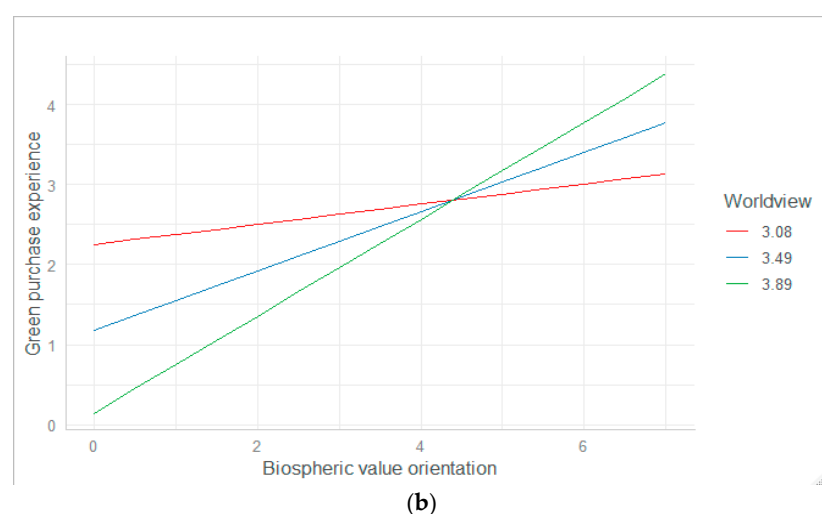


Figure 3. (a) Simple slope analysis, Model 9, altruism; (b) simple slope analysis, Model 9, biospheric value orientation.

5. Discussion and Theoretical Implications

Our study shows that there are many types of “green” consumers. While previous studies analysed the difference between “green” and “non-green” consumers (e.g., [42]) and others tried to explain the characteristics of “light-green” and “dark-green” consumers (e.g., [60]), our study shows that such dichotomous perspectives are insufficient to explain green consumption. When it comes to sustainable consumption patterns, it turns out that consumers show multiple shades of green, in the sense that differences in personal values and implicit beliefs determine a variety of green purchasing patterns.

Hypotheses 1, 2, and 3 investigated the direct effects of egoistic, altruistic, and biospheric value orientations on sustainable consumption patterns (i.e., (a) intention, (b) behaviour, and (c) experience), respectively. The results show that evidence of the direct effects of egoism and altruism on green consumer patterns is not convincing, while biospheric value orientations seem to be significantly related to green consumer patterns. Below we discuss each group of hypotheses subsequently.

With respect to Hypothesis 1a–c, we found that the expected negative relationship between egoistic value orientations and green consumer patterns was not confirmed by our data. This finding may be the consequence of the fact that egoism encompasses feelings of pride and self-respect, which are derived from self-interest [30]. Previous research has found that self-conscious and egoistic feelings are positively related to prosocial behaviours because acting pro-socially makes egoistic individuals feel proud of themselves [61]. Furthermore, egoistic feelings are associated with health concerns, which in turn engender green consumer choices because green products are associated with health benefits. It could be the case that our respondents were divided into parts. Part of our respondents may have endorsed pure egoistic values, which are expected to negatively relate to pro-environmental consumption patterns. Another part of our respondents may have felt self-conscious and proud of being associated with a green imago [30]. However, another part may have associated green products with health benefits, and their egoistic value orientations may have been positively associated with their sustainable consumption pattern. All these factors may have been the reason that we did not find support in our data for a direct relationship as hypothesised in Hypothesis 1a–c.

While we expected that higher altruism would have a positive effect on green purchase behaviour (Hypothesis 2a–c), this hypothesis was not supported by our data, with the exception of Hypothesis 2b. Hypothesis 2b gained support in Model 6 (Table 2), which contained interaction effects. The counterintuitive results may be explained by the value–action gap, which was observed in pro-environmental or sustainable behaviour [11,62]. The value–action gap refers to the inconsistency between consumers’ attitudes and behaviours

regarding sustainability, in which consumers acknowledge the need for a change towards environmentally friendly consumption, yet they fail to change their own behaviours [11,63]. A possible explanation of the value–action gap could be provided by the (perceived) trade-offs that are associated with green products. These trade-offs are higher prices, lower quality, and reduced performance. Olson [60], for example, stated that only “dark-green” consumers are willing to pay a price premium for green products, yet our study shows the need for a more nuanced view on the different shades of green consumers.

In line with Hypothesis 3a–c, we found that especially biospheric values are related to all the three types of green consumer patterns that we analysed (i.e., (a) pro-environmental purchasing intentions, (b) pro-environmental purchasing behaviour, and (c) pro-environmental purchasing experience). When individuals state that personal values, such as preventing pollution, respecting the earth, and protecting the environment, are guiding principles in their lives, then they do indeed show pro-environmental purchasing intentions, behaviour, and experience.

In conclusion, our findings suggest that altruism and egoism are virtually unrelated to green consumer patterns. These findings seem to be in line with other pro-environmental and sustainable segmentation studies, such as those of the United Kingdom government’s Department for Environment, Food, and Rural Affairs (DEFRA) studies. DEFRA developed a model of pro-environmental behaviour [64,65] that is linked to the 4E model: enable, encourage, exemplify, and engage [53]. Here it was found that consumers can be segmented into different clusters according to their ability to act pro-environmentally and their willingness to act pro-environmentally [65]. Our study adds to these previous results by showing the importance of personal values (and implicit beliefs) for profiling green consumers.

Hypotheses 4, 5, and 6 incorporated the interaction effects of worldview. The interaction models assessed whether the degree to which consumers have a pro-environmental worldview buffers or strengthens the relationship between personal values and green consumer patterns.

The hypothesis concerning egoistic value orientations (Hypothesis 4a–c) was not supported. As we did not find evidence of the direct effect of egoistic value orientations on sustainable consumption patterns, it is not surprising that we also did not find significant effects of the interactions. Below we discuss each group of hypotheses subsequently.

Hypothesis 5a,b was supported by our data. Our findings indicate that consumers with a less pro-environmental worldview have a positive relationship between altruism and green purchase behaviour, while consumers with a strong pro-environmental worldview show a negative relationship between altruism and green purchase behaviour (Figures 2a and 3a). This finding suggests that altruistic individuals with a pro-environmental worldview are less inclined to pursue pro-environmental purchasing, which may be the case because they are more inclined to stress social responsibility when making their purchase decision. In this respect, it is useful to consider that adherence to the New Ecological Paradigm may differ from adherence to a paradigm that places social responsibility centre stage. Recently, a study by Klain and colleagues [66] operationalised beliefs about social responsibility, which reflect an individual’s preferences and societal choices in relation to notions of justice, reciprocity, care, and virtue [66]. It may be so that the relationship between altruism and socially responsible product purchase patterns is enhanced by a belief system that reflects this prosocial worldview. We did not find significant interactions with respect to green purchasing intentions (Hypotheses 5c and 6c). People with implicit beliefs of nature being capricious or fragile may think that their actions cannot make a difference. As a result, they may score relatively low on intentions to purchase green products.

With respect to Hypothesis 6a,b, we found that having a pro-environmental worldview strengthens the positive relationship between biospheric value orientations and green purchase behaviour, as expected. In other words, when personal values are in line with implicit beliefs about the environment, the effect on green purchasing patterns is intensified.

Summing up, this pattern of results indicates that an individual's implicit beliefs have an important impact on the relationship between personal values and green purchasing behaviour and experience. Hence, not all consumers are the same.

Furthermore, in our study we adopted collectivism as a control variable because collectivists are generally believed to be concerned about the goals of the group, which include protecting the environment [13]. Although it was no explicit object of our study, we found support for these studies in the sense that in our sample, collectivism, indeed, was positively and significantly related to green purchase intention and experience. Appendix B provides an overview of all hypotheses addressed in this study.

6. Practical Implications

Our study provides insights for practitioners who seek to stimulate green consumer behaviour. First, our study shows that green consumer patterns depend on consumers' personal biospheric values (support for Hypothesis 3). Marketers can attempt to raise consumers' concern for the environment in their campaigns by stressing values such as respecting the earth, being in unity with nature, and protecting the environment. Our results suggest that these strategies elicit green purchase intention, behaviour, and experience. Furthermore, green products can be positioned in a way that they appeal to consumers with a high sense of awareness about environmental issues. However, as consumers are becoming more aware of the environmental and social impacts of products, overly positioning products as green might result in greenwashing when these claims are not valid [67].

Second, marketers should realise the impact of consumers' implicit beliefs (i.e., worldview (support for Hypotheses 5 and 6)) on their purchasing behaviour. Our results suggest that pro-environmental worldview in combination with altruistic personal values has a negative effect on green consumption patterns, while worldview in combination with biospheric personal values is related to more green purchasing behaviour. Hence, in marketing campaigns marketers can attempt to steer away from consumers' sense of social responsibility and instead focus on consumers' environmental concerns. At the same time, marketers' efforts can be directed towards influencing consumers' implicit beliefs about the value of the natural world and their relationship with it. Implicit beliefs can be changed, albeit slowly [49]. Studies have indicated that advertisers have found it profitable to present a-stereotypical gender roles in commercials [68]. Hence, the fact that over the last decade marketing campaigns have blurred gender roles, for example, by showing detergent ads with males operating the washing machine, may over time influence the implicit beliefs of young people about gender stereotypes.

7. Directions for Future Research

Our study is subject to several limitations, which give rise to future research avenues. First, in our study we did not explicitly distinguish between categories of green products, such as organic food, luxury, durable goods, and typologies of (ethical or sustainable) consumer practices [11]. Liobikiene and Bernatoniene [48] suggested that purchase behaviour may differ between categories of green products. Furthermore, when purchasing high-involvement products, consumers tend to put less value on performance in terms of sustainability than they would do in the case of frequently purchased products. Future research may want to take such nuances into account.

Second, when considering the generalisability of our findings, it should be noted that our sample was quite homogenous, containing Polish business students. For example, Dursun and colleagues [69] showed that specifically young consumers suffer from denial in justifying their unsustainable production practices. Future studies should try to replicate our model in other settings to assess whether our findings also apply to a more differentiated population.

Third, we used multiple regression analysis and simple slope analysis to test our model. Other studies may want to consider structural equation modelling, which could fa-

cilitate the investigation of multiple regression models simultaneously. To this end, scholars could use, for instance, partial least squares structural equation modeling (PLS-SEM).

Fourth, several studies have indicated that the perceived inconvenience of purchasing green may also play a role in determining green consumer patterns (e.g., [13]). There may be practical reasons that withhold consumers from purchasing green, such as the belief that green products are expensive and difficult to find [70]. Future replications of our study may want to add the perceived inconvenience of purchasing green as a control variable. Related to this, the attitude–behaviour gap may be connected to the successive stages (cognitive, affective, and conative) that make up consumer decision-making processes (e.g., [71]). Cognitive, affective, and conative stages could be incorporated as controls in future empirical analysis.

Some studies have indicated that worldviews tend to be inconsistent [72–74]. Future research may want to address alternative belief systems, such as the one proposed by Klain and colleagues [66], which is based on beliefs about responsibilities that humans have towards humans, nonhumans, landscapes, and ecosystems. Related to this, a study by Ballem and colleagues [75] found that implicit beliefs about worldview vary by political ideology and/or party affiliation, with conservatives taking personal responsibility, while liberals have more openness to complexity and more tolerance for ambiguity and uncertainty. Future research may want to address whether green purchasing patterns are influenced by the political preference of consumers.

8. Conclusions

The present study provides new insights into determinants of sustainable consumption. Our results stress the positive impact of consumers' personal biospheric values on intentions, behaviour, and experience with buying sustainable products. Furthermore, our results highlight the importance of worldview as a moderating factor in the relationship between personal values and green purchasing behaviour and experience. Consumers differ to a great extent. Their views on the world are of chief importance for the way their personal values are related to their purchase decisions.

Author Contributions: Conceptualisation, M.C.J.C. and J.P.; methodology, M.C.J.C.; survey design, M.C.J.C. and J.P.; survey translation, J.P., A.M.-K., and B.F.; formal analysis, M.C.J.C.; data curation, M.C.J.C.; writing—original draft preparation, M.C.J.C.; writing—review and editing, M.C.J.C., W.L., J.P., A.M.-K., and B.F. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, however Institutional Review Board (or Ethics Committee) approval was not requested for this data collection.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Due to the nature of this research, the participants of this study did not agree for their data to be shared publicly.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Measures

Multiple-item scales were used to measure each of the construct variables. All measures used in this study stem from prior research and have previously demonstrated appropriate psychometric properties. The original English items were translated into Polish, the local language of the target respondents. Two researchers who were fluent in both English and Polish performed backward and forward translations following the back translation procedure recommended by Brislin [76]. Occasional missing values were imputed using multivariate imputation by chained equation (implementing the MICE algorithm as described in Van Buuren and Groothuis-Oudshoorn [77]), which is an advanced

technique for handling missing values that draws plausible values from a distribution specifically designed for each missing datapoint.

To assess green consumer patterns, we used several scales adopted from prior studies. Green product purchase intention was measured with a three-item scale used in Rahimah and colleagues [27]. The scale demonstrated good internal consistency with $\alpha = 0.91$. Following Rahimah and colleagues [27], we also assessed green product purchase experience with one item. Actual green purchase behaviour was measured by adopting the two-item scale of Nguyen and colleagues [12]. All three measures employed 7-point Likert scales ranging from 1 (completely disagree) to 7 (completely agree).

We assessed personal values with the three-dimensional scale of De Groot and Steg [36], who based their study on the research by Schwartz [31]. The value scale consists of 13 values that belong to three dimensions: (1) egoistic values, (2) altruistic values, and (3) biospheric values. Respondents were requested to indicate to what extent certain values were important “as a guiding principle in their lives” on a 9-point scale ranging from -1 (opposed to my values) and 0 (not important) to 7 (extremely important). We examined the factor structure of the general values construct. We conducted a three-factor confirmatory factor analysis (CFA) to examine the distinctiveness of the three-factor model. To assess model fit, we examined the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). The three-factor model showed a better model fit at T1 ($\chi^2 = 186.074$; $df = 62$; $\chi^2/df = 3.00$; CFI = 0.927; TLI = 0.908; RMSEA = 0.083; SRMR = 0.095) than the one-factor solution ($\chi^2 = 687.255$; $df = 65$; $\chi^2/df = 10.57$; CFI = 0.632; TLI = 0.559; RMSEA = 0.181; SRMR = 0.162). Still, the fit of the three-factor model is not optimal, which suggests that the three subscales of the general values construct can be best conceived of as separate variables, as was also done in the studies by Nguyen and colleagues [12] and Lee and colleagues [2]. The subscales demonstrated good internal consistency. For egoistic values, we found $\alpha = 0.79$; for altruistic values, we found $\alpha = 0.78$; and for biospheric values, we found $\alpha = 0.80$.

New Ecological Paradigm (worldview) refers to individuals’ implicit beliefs about the impact of humanity on the quality of the environment. It was measured by using a 15-item scale ranging from 1 (completely disagree) to 5 (completely agree) from Dunlap and colleagues [23], which is a revised version of the “New Environmental Paradigm” scale developed by Dunlap and Van Liere [78]. The revised version was labelled the “New Ecological Paradigm” scale [23]. This scale has been widely used to measure environmental attitudes, beliefs, values, and worldview. It consists of five dimensions, each covering a facet of an ecological worldview: (1) the fragility of nature’s balance; (2) the reality of limits to growth; (3) anti-anthropocentrism; (4) human exemptionalism, referring to the idea that humans are exempt from the constraints of nature [79]; and (5) the likelihood of the occurrence of potentially disastrous environmental changes (i.e., an ecocrisis). Most worldview researchers have treated the New Environmental Paradigm scale, and especially the revised version from Dunlap and colleagues [23], as unidimensional [80], although a few factor-analytic studies have suggested that the scale may be assessing multiple dimensions. We conducted a CFA to examine whether our data were in line with a one-factor or five-factor structure. In our case, the one-factor model at T1 ($\chi^2 = 273.164$; $df = 90$; $\chi^2/df = 3.03$; CFI = 0.705; TLI = 0.656; RMSEA = 0.084; SRMR = 0.077) showed a very similar fit as the five-factor solution at T1 ($\chi^2 = 240.450$; $df = 80$; $\chi^2/df = 3.00$; CFI = 0.742; TLI = 0.661; RMSEA = 0.083; SRMR = 0.086). We decided to follow most studies by adopting the one-factor model. We recoded the seven even-numbered items in the original scale from Dunlap and colleagues [23] so that agreement indicates a pro-ecological worldview. The internal consistency of the items was good, with $\alpha = 0.72$.

We assessed several control variables as prior research suggests that the demographic background of consumers may account for the variance in their purchasing behaviours [12]. Age was measured in years. Gender was measured as a dichotomous variable coded as 0 for male and 1 for female. Furthermore, we included collectivism as a control variable

because prior studies (e.g., [12]) have shown that consumers' cultural values are related to their green purchasing attitude and behaviour. The collectivism scale ranged from 1 (completely disagree) to 7 (completely agree).

Appendix B.

Table A1. Overview of Hypotheses.

Hypothesis Number	Hypotheses about Direct Effects			Supported or Not	Evidence
	X Variable	Direction of the Relationship	Y Variable		
1a	Consumers' egoistic value orientations	Negative	Green purchasing intention	Not supported	Models 1, 2, and 3 (Table 2)
1b	Consumers' egoistic value orientations	Negative	Green purchasing behaviour	Not supported	Models 4, 5, and 6 (Table 2)
1c	Consumers' egoistic value orientations	Negative	Green purchasing experience	Not supported	Models 7, 8, and 9 (Table 2)
2a	Consumers' altruistic value orientations	Negative	Green purchasing intention	Not supported	Models 1, 2, and 3 (Table 2)
2b	Consumers' altruistic value orientations	Negative	Green purchasing behaviour	Supported, given certain covariates	Model 6 (Table 2)
2c	Consumers' altruistic value orientations	Negative	Green purchasing experience	Supported	Models 7, 8, and 9 (Table 2)
3a	Consumers' biospheric value orientations	Negative	Green purchasing intention	Supported	Models 1 and 2 (Table 2)
3b	Consumers' biospheric value orientations	Negative	Green purchasing behaviour	Supported	Models 4, 5, and 6 (Table 2)
3c	Consumers' biospheric value orientations	Negative	Green purchasing experience	Supported	Models 7, 8, and 9 (Table 2)

Hypothesis Number	Hypotheses about Interaction Effects of Worldview			Supported or Not	Evidence
	X Variable	Y Variable	Effect of the Interaction		
4a	Consumers' egoistic value orientations	Green purchasing intention	Buffer	Not supported	Model 3 (Table 2)
4b	Consumers' egoistic value orientations	Green purchasing behaviour	Buffer	Not supported	Model 6 (Table 2)
4c	Consumers' egoistic value orientations	Green purchasing experience	Buffer	Not supported	Model 9 (Table 2)
5a	Consumers' altruistic value orientations	Green purchasing intention	Enhancement	Not supported	Model 3 (Table 2)
5b	Consumers' altruistic value orientations	Green purchasing behaviour	Enhancement	Supported	Model 6 (Table 2); Figure 2a
5c	Consumers' altruistic value orientations	Green purchasing experience	Enhancement	Supported	Model 9 (Table 2); Figure 2b
6a	Consumers' biospheric value orientations	Green purchasing intention	Enhancement	Not supported	Model 3 (Table 2)
6b	Consumers' biospheric value orientations	Green purchasing behaviour	Enhancement	Supported	Model 6 (Table 2); Figure 3a
6c	Consumers' biospheric value orientations	Green purchasing experience	Enhancement	Supported	Model 9 (Table 2); Figure 3b

References

- United Nations. Global Sustainable Development Report. 2019. Available online: https://sustainabledevelopment.un.org/content/documents/24797GSDR_report_2019.pdf (accessed on 31 March 2021).
- Lee, Y.; Kim, M.; Kim, S.; Choi, J. Antecedents and Interrelationships of Three Types of Pro-Environmental Behavior. *J. Bus. Res.* **2014**, *67*, 2097–2105. [CrossRef]
- Peattie, K. Green Consumption: Behavior and Norms. *Annu. Rev. Environ. Resour.* **2010**, *35*, 195–228. [CrossRef]
- Abeliotis, K.; Koniari, C.; Sardianou, E. The Profile of the Green consumer in Greece. *Int. J. Consum. Stud.* **2010**, *34*, 153–160. [CrossRef]

5. Do Paco, A.M.F.; Raposo, M.L.B.; Leal Filho, W. Identifying the Green Consumer: A Segmentation Study. *J. Target Meas. Anal. Mark.* **2009**, *17*, 17–25. [\[CrossRef\]](#)
6. Golob, U.; Kronegger, L. Environmental Consciousness of European Consumers: A Segmentation-Based Study. *J. Clean. Prod.* **2019**, *221*, 1–9. [\[CrossRef\]](#)
7. Tilikidou, I.; Delistavrou, A. Pro-Environmental Purchasing Behaviour during the Economic Crisis. *Mark. Intell. Plan.* **2014**, *32*, 160–173. [\[CrossRef\]](#)
8. Platje, J. *Institutional Capital—Creating Capacity and Capabilities for Sustainable Development*; Wydawnictwo Uniwersytetu Opolskiego: Opole, Poland, 2011.
9. Liobikienė, G.; Bernatienė, J. Why Determinants of Green Purchase Cannot be Treated Equally? The Case of Green Cosmetics: Literature Review. *J. Clean. Prod.* **2017**, *162*, 109–120. [\[CrossRef\]](#)
10. Joshi, Y.; Rahman, Z. Consumers' Sustainable Purchase Behaviour: Modeling the Impact of Psychological Factors. *Ecol. Econ.* **2019**, *159*, 235–243. [\[CrossRef\]](#)
11. Young, W.; Hwang, K.; McDonald, S.; Oates, C.J. Sustainable Consumption: Green Consumer Behaviour When Purchasing Products. *Sustain. Dev.* **2010**, *18*, 20–31. [\[CrossRef\]](#)
12. Nguyen, T.N.; Lobo, A.; Greenland, S. Pro-Environmental Purchase Behaviour: The Role of Consumers' Biospheric Values. *J. Retail. Consum. Serv.* **2016**, *33*, 98–108. [\[CrossRef\]](#)
13. Nguyen, T.N.; Lobo, A.; Greenland, S. The Influence of Cultural Values on Green Purchase Behaviour. *Mark. Intell. Plan.* **2017**, *35*, 377–396. [\[CrossRef\]](#)
14. Goh, S.K.; Balaji, M.S. Linking Green Skepticism to Green Purchase Behavior. *J. Clean. Prod.* **2016**, *131*, 629–638. [\[CrossRef\]](#)
15. Kim, S.C.; Cooke, S.L. Using the Health Belief Model to Explore the Impact of Environmental Empathy on Behavioral Intentions to Protect Ocean Health. *Environ. Behav.* **2020**, 1391652093263. [\[CrossRef\]](#)
16. Karlin, B.; Davis, N.; Sanguinetti, A.; Gamble, K.; Kirkby, D.; Stokols, D. Dimensions of Conservation: Exploring Differences among Energy Behaviors. *Environ. Behav.* **2014**, *46*, 423–452. [\[CrossRef\]](#)
17. Ajzen, I. The Theory of Planned Behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [\[CrossRef\]](#)
18. Stern, P.C.; Dietz, T. The Value Basis of Environmental Concern. *J. Soc. Issues.* **1994**, *50*, 65–84. [\[CrossRef\]](#)
19. Bardi, A.; Schwartz, S.H. Values and Behavior: Strength and Structure of Relations. *Pers. Soc. Psychol. Bull.* **2003**, *29*, 1207–1220. [\[CrossRef\]](#) [\[PubMed\]](#)
20. De Groot, J.I.M.; Steg, L. Value Orientations to Explain Beliefs Related to Environmental Significant Behavior: How to Measure Egoistic, Altruistic, and Biospheric Value Orientations. *Environ. Behav.* **2008**, *40*, 330–354. [\[CrossRef\]](#)
21. Naz, F.; Oláh, J.; Vasile, D.; Magda, R. Green Purchase Behavior of University Students in Hungary: An Empirical Study. *Sustainability* **2020**, *12*, 10077. [\[CrossRef\]](#)
22. Derdowski, L.A.; Grah, Å.H.; Hansen, H.; Skeiseid, H. The New Ecological Paradigm, Pro-Environmental Behaviour, and the Moderating Effects of Locus of Control and Self-Constraint. *Sustainability* **2020**, *12*, 7728. [\[CrossRef\]](#)
23. Dunlap, R.E.; Van Liere, K.D.; Mertig, A.G.; Jones, R.E. Measuring Endorsement of the New Ecological Paradigm: A Revised NEP scale. *J. Soc. Issues* **2000**, *56*, 425–442. [\[CrossRef\]](#)
24. Chwialkowska, A.; Bhatti, W.A.; Glowik, M. The Influence of Cultural Values on Pro-Environmental Behavior. *J. Clean. Prod.* **2020**, *268*, 122305. [\[CrossRef\]](#)
25. Kumar, P.; Polonsky, M.J. An Analysis of the Green Consumer Domain within Sustainability Research: 1975 to 2014. *Australas. Mark. J.* **2017**, *25*, 85–96. [\[CrossRef\]](#)
26. Leonidou, C.N.; Leonidou, L.C. Research into Environmental Marketing/Management: A Bibliographic Analysis. *Eur. J. Mark.* **2011**, *45*, 68–103. [\[CrossRef\]](#)
27. Rahimah, A.; Khalil, S.; Cheng, J.M.; Tran, M.D.; Panwar, V. Understanding Green Purchase Behavior through Death Anxiety and Individual Social Responsibility: Mastery as a Moderator. *J. Consum. Behav.* **2018**, *17*, 477–490. [\[CrossRef\]](#)
28. Onel, N. Pro-Environmental Purchasing Behavior of Consumers: The Role of Norms. *Soc. Mar. Q.* **2017**, *23*, 103–121. [\[CrossRef\]](#)
29. Qian, C.; Yu, K.; Gao, J. Understanding Environmental Attitude and Willingness to Pay with an Objective Measure of Attitude Strength. *Environ. Behav.* **2021**, *53*, 119–150. [\[CrossRef\]](#)
30. Song, S.Y.; Kim, Y. Doing Good Better: Impure Altruism in Green Apparel Advertising. *Sustainability* **2019**, *11*, 5762. [\[CrossRef\]](#)
31. Schwartz, S.H. Universals in the Content and Structure of Values. *Adv. Exp. Soc. Psychol.* **1992**, *25*, 1–65.
32. Ahmad, W.; Kim, W.G.; Anwer, Z.; Zhuang, W. Schwartz personal values, theory of planned behavior and environmental consciousness: How Tourists' Visiting Intentions towards Eco-Friendly Destinations are Shaped? *J. Bus. Res.* **2020**, *110*, 228–236. [\[CrossRef\]](#)
33. Ahmadi, P.; Rahimian, M.; Movahed, R.G. Theory of Planned Behavior to Predict Consumer Behavior in Using Products Irrigated with Purified Wastewater in Iran. *J. Clean. Prod.* **2021**, *296*, 126359. [\[CrossRef\]](#)
34. Steg, L.; Bolderdijk, J.W.; Keizer, K.; Perlaviciute, G. An Integrated Framework for Encouraging Pro-Environmental Behaviour: The Role of Values, Situational Factors and Goals. *J. Environ. Psychol.* **2014**, *38*, 104–115. [\[CrossRef\]](#)
35. Batson, C.D. *Altruism in Humans*; Oxford University Press: New York, NY, USA, 2011.
36. de Groot, J.I.M.; Steg, L. Value Orientations and Environmental Beliefs in Five Countries-Validity of an Instrument to Measure Egoistic, Altruistic and Biospheric Value Orientations. *J. Cross Cult. Psychol.* **2007**, *38*, 318–332. [\[CrossRef\]](#)

37. Wang, B.; Wang, X.; Guo, D.; Zhang, B.; Wang, Z. Analysis of Factors Influencing Residents' Habitual Energy-Saving Behaviour Based on NAM and TPB Models: Egoism or Altruism? *Energy Policy* **2018**, *116*, 68–77. [CrossRef]
38. de Groot, J.I.M.; Steg, L. Mean or Green: Which Values can Promote Stable Pro-Environmental Behavior? *Conserv. Lett.* **2009**, *2*, 61–66. [CrossRef]
39. Pop, R.-A.; Săplăcan, Z.; Alt, M.-A. Social Media Goes Green—The Impact of Social Media on Green Cosmetics Purchase Motivation and Intention. *Information* **2020**, *11*, 447. [CrossRef]
40. Yadav, R. Altruistic or Egoistic: Which Value Promotes Organic Food Consumption Among Young Consumers? A Study in the Context of a Developing Nation. *J. Retail. Consum. Serv.* **2016**, *33*, 92–97. [CrossRef]
41. Hwang, J. Organic Food as Self-Presentation: The Role of Psychological Motivation in Older Consumers' Purchase Intention of Organic Food. *J. Retail. Consum. Serv.* **2016**, *28*, 281–287. [CrossRef]
42. Barbarossa, C.; De Pelsmacker, P. Positive and Negative Antecedents of Purchasing Eco-Friendly Products: A Comparison Between Green and Non-Green Consumers. *J. Bus. Ethics.* **2016**, *134*, 229–247. [CrossRef]
43. Gkargkavouzi, A.; Gkargkavouzi, A.; Halkos, G.; Halkos, G.; Matsiori, S.; Matsiori, S. A Multi-Dimensional Measure of Environmental Behavior: Exploring the Predictive Power of Connectedness to Nature, Ecological Worldview and Environmental Concern. *Soc. Indic. Res.* **2019**, *143*, 859–879. [CrossRef]
44. Pfattheicher, S.; Sassenrath, C.; Schindler, S. Feelings for the Suffering of Others and the Environment: Compassion Fosters Proenvironmental Tendencies. *Environ. Behav.* **2016**, *48*, 929–945. [CrossRef]
45. Ateş, H. Merging Theory of Planned Behavior and Value Identity Personal Norm Model to Explain Pro-Environmental Behaviors. *Sustain. Prod. Consum.* **2020**, *24*, 169–180. [CrossRef]
46. Perlaviciute, G.; Steg, L. The Influence of Values on Evaluations of Energy Alternatives. *Renew. Energ.* **2015**, *77*, 259–267. [CrossRef]
47. Liu, J.; Wang, R.; Yang, J.; Shi, Y. The Relationship between Consumption and Production System and its Implications for Sustainable Development of China. *Ecol. Complex.* **2010**, *7*, 212–216. [CrossRef]
48. Liobikiene, G.; Dagiliute, R. The Relationship Between Economic and Carbon Footprint Changes in EU: The Achievements of the EU Sustainable Consumption and Production Policy Implementation. *Environ. Sci. Policy.* **2016**, *61*, 204–211. [CrossRef]
49. Meadows, D. *Leverage Points: Places to Intervene in a System*; The Sustainability Institute: Hartland, WI, USA, 1999.
50. Sadiq, M.; Paul, J.; Bharti, K. Dispositional Traits and Organic Food Consumption. *J. Clean. Prod.* **2020**, *266*, 121961. [CrossRef]
51. Ministerstwo Klimatu i Środowiska. Badania Świadomości Ekologicznej [Ministry of Climate and the Environment; Ecological Awareness Research]. 2020. Available online: <https://www.gov.pl/web/klimat/badania-swiadomosci-ekologicznej> (accessed on 30 March 2021).
52. Mobile Institute. Green Generation 2020–Green E-Commerce 2020. Available online: <https://eizba.pl/raport-green-generation-2020-green-e-commerce/> (accessed on 30 March 2021).
53. Lambrechts, W.; Ghijssen, P.W.T.; Jacques, A.; Walravens, H.; Van Liedekerke, L.; Van Petegem, P. Sustainability Segmentation of Business Students: Toward Self-Regulated Development of Critical and Interpretational Competences in a Post-Truth era. *J. Clean. Prod.* **2018**, *202*, 561–570. [CrossRef]
54. Ng, E.S.; Burke, R.J. Predictor of Business Students' Attitudes toward Sustainable Business Practices. *J. Bus. Ethics* **2010**, *95*, 603–615. [CrossRef]
55. Bahaee, M.; Pisani, M.J.; Shavakh, F. Residents Attitudes toward International Tourism: A Case of Iran. *J. Tour. Recreat.* **2014**, *1*, 1–14. [CrossRef]
56. Rosseel, Y. Lavaan: An R Package for Structural Equation Modeling. *J. Stat. Softw.* **2012**, *48*, 1–36. [CrossRef]
57. Long, J.A. Jtools: Analysis and Presentation of Social Scientific Data; R Package Version 2.0.1. 2019. Available online: <https://cran.r-project.org/package=jtools> (accessed on 6 April 2021).
58. Bernerth, J.B.; Aguinis, H. A Critical Review and Best-Practice Recommendations for Control Variable Usage. *Pers. Psychol.* **2016**, *69*, 229–283. [CrossRef]
59. Byrne, B.M. *Structural Equation Modeling with Mplus: Basic Concepts, Applications, and Programming*; Routledge: New York, NY, USA, 2012.
60. Olson, E.L. It's Not Easy Being Green: The Effects of Attribute Tradeoffs on Green Product Preference and Choice. *J. Acad. Mark. Sci.* **2013**, *41*, 171–184. [CrossRef]
61. Lilley, A.; Slonim, R. The Price of Warm Glow. *J. Public Econ.* **2014**, *114*, 58–74. [CrossRef]
62. Akehurst, G.; Afonso, C.; Gonçalves, H.M. Re-Examining Green Purchase Behaviour and the Green Consumer Profile: New Evidences. *Manag. Decis.* **2012**, *50*, 972–988. [CrossRef]
63. Prothero, A.; Dobscha, S.; Freund, J.; Kilbourne, W.; Luchs, M.G.; Ozanne, L.K.; Thøgersen, J. Sustainable Consumption: Opportunities for Consumer Research and Public Policy. *J. Public Policy Mark.* **2011**, *30*, 31–38. [CrossRef]
64. DEFRA. *Survey of Public Attitudes and Behaviours toward the Environment*; Department for Environment, Food and Rural Affairs, British Government: London, UK, 2007.
65. DEFRA. *Framework for Pro-Environmental Behaviours*; Department for Environment, Food and Rural Affairs, British Government: London, UK, 2008.
66. Klain, S.C.; Olmsted, P.; Chan, K.M.A.; Satterfield, T. Relational Values Resonate Broadly and Differently than Intrinsic or Instrumental Values, or the New Ecological Paradigm. *PLoS ONE* **2017**, *12*, e0183962. [CrossRef]

67. Rahman, I.; Park, J.; Chi, C. Consequences of “Greenwashing”: Consumers’ Reactions to Hotels’ Green Initiatives. *Int. J. Contemp. Hosp. Manag.* **2015**, *27*, 1054–1081. [[CrossRef](#)]
68. Milner, L.M.; Higgs, B. Gender Sex-Role Portrayals in International Television Advertising over Time: The Australian Experience. *J. Curr. Issues Res. Advert.* **2004**, *26*, 81–95. [[CrossRef](#)]
69. Dursun, İ.; Tümer Kabadayı, E.; Tuğer, A.T. Overcoming the Psychological Barriers to Energy Conservation Behaviour: The Influence of Objective and Subjective Environmental Knowledge. *Int. J. Consum. Stud.* **2019**, *43*, 402–416. [[CrossRef](#)]
70. Herbes, C.; Beuthner, C.; Ramme, I. How Green is Your Packaging—A Comparative International Study of Cues Consumers Use to Recognize Environmentally Friendly Packaging. *Int. J. Consum. Stud.* **2020**, *44*, 258–271. [[CrossRef](#)]
71. Shim, D.; Shin, J.; Kwak, S.Y. Modelling the consumer decision-making process to identify key drivers and bottlenecks in the adoption of environmentally friendly products. *Bus. Strategy Environ.* **2018**, *27*, 1409–1421. [[CrossRef](#)]
72. Beck, H. *Mózg się Myli (Original: Irren ist Nützlich)*; Wydawnictwo JK: Łódź, Poland, 2018.
73. Platje, J.; Will, M.; Van Dam, Y. A Fragility Approach to Sustainability—Researching Effects of Education. *Int. J. Sustain. High. Educ.* **2019**, *20*, 1220–1239. [[CrossRef](#)]
74. Harari, Y.N. *Sapiens—A Brief History of Humankind*; Vintage: London, UK, 2018.
75. Ballew, M.; Goldberg, M.; Rosenthal, S.; Gustafson, A.; Leiserowitz, A. Systems Thinking as a Pathway to Global Warming Beliefs and Attitudes Through an Ecological Worldview. *Proc. Natl. Acad. Sci. USA* **2019**, *116*, 8214–8219. [[CrossRef](#)] [[PubMed](#)]
76. Brislin, R. The Wording and Translation of Tesearch Instruments. In *Field Methods in Cross-Cultural Research: Cross-Cultural Research and Methodology Series*; Lonner, W., Berry, J., Eds.; Sage Publications: Thousand Oaks, CA, USA, 1986; pp. 137–164.
77. van Buuren, S.; Groothuis-Oudshoorn, K. MICE: Multivariate Imputation by Chained Equations in R. *J. Stat. Softw.* **2011**, *45*, 1–67. [[CrossRef](#)]
78. Dunlap, R.E.; Liere, K.D.V. The “New Environmental Paradigm”. *J. Environ. Educ.* **1978**, *9*, 10–19. [[CrossRef](#)]
79. Dunlap, R.E.; Catton, W.R., Jr. Toward an Ecological Sociology. In *Ecology, Society and the Quality of Social Life*; D’Antonio, W.V., Sasaki, M., Yonebayashi, Y., Eds.; Transaction: New Brunswick, NJ, USA, 1994; pp. 11–31.
80. Hawcroft, L.J.; Milfont, T.L. The Use and Abuse of the New Environmental Paradigm Scale over the Last 30 Years: A Meta-analysis. *J. Environ. Psychol.* **2010**, *30*, 143–158. [[CrossRef](#)]