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Charlotte Cranny-Evans, Klaudia Urbanska and Sevil Yesiloglu

Do human values play a role in pro-environmental purchasing behaviours of Polish people?

Green consumerism has increased in popularity in Europe over the past decade due to new political policies and social shifts. The purpose of this study was to expand the research in understanding the thinking and values of eco-consumers and how this can assist in marketing efforts. Previous studies have given little focus on Poland and the role of their values in purchasing energy efficient appliances. Research shows that certain values can indicate an increased likelihood in caring for the environment and this study aims to affirm this further amongst Polish millennials as well as any differences based on sex. The analysis used the results of the European Social Survey (ESS) Round 8 from 2016. This study focused on human values and their role on purchases of energy efficient appliances and whether climate change attitudes moderate that relationship. A thorough analysis showed that human values of Polish millennials do not have an influence on buying energy efficient appliances. Moreover, attitudes towards climate change do not moderate a relation between these two variables. This study has highlighted the complexity of the role of human values in energy efficient preferences and has demonstrated justification for further research in this area.

Keywords: Human values, European social survey, energy efficient appliances.

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Corresponding author: Sevil Yesiloglu, email: syesiloglu@bournemouth.ac.uk

INTRODUCTION

The rise in temperatures, more droughts, heatwaves and hurricanes, rising sea-level, as well as, ice-free Arctic are only a few of the climate change effects we will see soon (NASA 2019). As such, it is important to educate people about the connection between their lifestyle choices and their influence on the environment (Cordero et al. 2008). Energy

efficient appliances were found to be of high significance to reduce energy usage with regards to climate change (Linares and Labandeira 2010). However, in emerging economy countries, like Poland, eco-friendly appliances purchases are more associated with savings rather than the effect they have on the environment (Płatkowska-Prokopczyk 2017).

There is a lack of general research on human values, climate change attitudes and whether they have an influence on the purchasing decisions of energy efficient appliances. Therefore, this research paper seeks to investigate the relation between human values and purchasing energy efficient appliances amongst Polish millennials. In order to understand the role plays in pro-environmental purchasing behaviour of Polish people, analysis of each individual component is necessary. Schwartz's theory of basic human values will be analysed to understand the human values prevalent in Polish people (1992). Additionally, to explore what role they have in purchasing energy efficient home appliances, the Fishbein and Ajzen (1980)'s theory of reasoned action will be discussed. The theory takes into account attitudes and social norms as predictors influence individuals' behaviours. Finally, using a moderator will help to create an additional insight into climate change attitudes. According to Wells et al. (2011) people that take action to minimise their impact on the environment often are worried about climate change.

Thorough analysis of the literature available in the field of pro-environmental behaviours indicated that there is a lack of understanding of human values and their influence on those behaviours. For academics, this research paper is going to help to empirically examine the motivations behind purchasing energy efficient appliances and people's attitudes towards climate change. From a practitioner point of view, it is important to understand people's motivations behind certain behaviours to help them build effective campaigns and communications that will persuade publics to make a permanent change in their actions (Broom 2013).

LITERATURE REVIEW

Energy conservation behaviour

Household energy usage has been topical in the last few decades mainly due to its negative consequences for the environment (Portinga et al. 2003). Many scholars have studied people's views and attitudes as the determining factors of energy saving behaviour (Gardner and Stern 1996, Olson 1981).

A model which suggests that attitudes and norms predict and determine consumer behaviours is called the theory of reasoned action (TRA) (Madden et al. 1992). However, Fishbein and Ajzen's model only explains behaviours that the individual can control and does not take into consideration their outcome (Sheppard et al. 1998). The theory has already been applied in various environmental studies and confirmed in the following examples. Bang et al. (2000) focused on renewable energy sources and found that individual's decisions were more emotionally linked rather than information-based. Goldenhar and Connell (1993) implemented the TRA in the area of recycling behaviour and found that attitudes, norms and past experiences have a direct effect on their recycling activities. Finally, Hong-Youl and Janda (2012) utilised the Fishbein and Ajzen's

model to predict customer's intention to purchase energy-efficient products. They found that overall attitudes had a stronger effect on customer's intentions rather than norms.

All things considered, studies mentioned in the paragraph above show that attitudes have a predominant impact on people's environmental attitudes, views and behaviours. Whilst attitudes are influenced by multiple different concepts, human values were found to be related to them (Hitlin and Piliavin 2004 in Templeton and Fleischmann 2011). Subsequently, no studies were found that focused on human values and their influence of energy conservation behaviours in the emerging economy countries.

Poland as an emerging economy

From 2003 to 2013, the Gross Domestic Product (GDP) in Poland has seen a gradual but significant increase of 49% (Central Statistical Office 2015). This, as well as other factors, such as "economic development potential" and "readiness and ability to accept change" gave Poland the title of an emerging economy together with other Eastern European Countries (Ettenson 1993, Kowalewski et al. 2010, Hoskisson et al. 2000). Additionally, countries with emerging economies are usually characterized by low-income and rapid pace of economic growth (Hoskisson et al. 2000). All of these traits contribute to a highly changeable economy.

Energy efficient appliances in Poland

"Total primary energy consumption increased in years 2003-2013 from 91 Mtoe to almost 98 Mtoe (0.7%/year)" and this also brought a significant increase in household electricity prices in Poland (Central Statistical Office 2015, p.10). The country mainly relies on coal and lignite as the primary energy sources (Central Statistical Office 2015). The Central Statistical Office (GUS) and the Polish National Energy Conservation Agency (KAPE) released a report stating the household energy consumption has decreased by 1.5% in 2016 since 2006 (2018). This is perhaps due to the National Energy Efficiency Action Plan (NEEAP) released in 2011 with the key input of 'white certificates' that allow consumers to understand savings from their energy efficient appliances (Enerdata.net 2012). However, a report from Energy Efficiency Watch indicated that the new plan set out little economic incentives for those that choose energy efficiency appliances and limited information was provided on the training of retail staff (Energy Efficiency Watch 2013).

Energy efficient appliances in Poland

Climate change views, perceptions, beliefs and their role in behaviour intentions is often complex (O'Connor et al 1999). Generally, consumers that regularly take action to minimise their impact on the environment show concern for the effects of climate change (Wells et al 2011). However, Downing and Ballantyne (2007) suggest that consumers only engage in low commitment behaviours (such as recycling) suggesting consumers feel they discharge their impact on the environment with 'token behaviours'.

O'Connor et al. (1999) surmised that increased knowledge and risk perception of climate change lead to higher engagement in actions that minimise and protect the environment. This is supported by previous literature that suggests consumers simply favour some

pro-environmental actions and reject others (Downing and Ballantyne 2007; Dickinson et al. 2013). This is also congruent with the Polish population who engage with 'low commitment actions such as carbon offsetting' (Dickinson et al 2013, p.516).

For Poland, Błoński's research has shown an increase in Poles' belief of caring for nature and the environment, a universalism value (2015). However, opinion polls from the Public Opinion Research Centre (CBOS) (2013) show that Poles are strongly driven by economic and health motives when it comes to their consumer behaviour, as opposed to the environmental footprints of products.

Previous research has looked into the role of age and gender on the accountability and concerns towards climate change. According to Alber and Roehr (2006), women are more likely than men to adopt a more eco-friendly lifestyle. A study looking into climate change beliefs and behaviours discovered 31% of 18-34 years and only 19% of over 65s were worried about climate change (Phillips et al 2018). For that reason, our study focuses on millennials and Weinbaum et al. (2016) defines them as people who were 12-36 years old in 2016, born from 1980 to 2004.

Human Values

Human values are important in understanding attitudes and behaviour (Schwartz 1992). Basic human values are also considered to have 'predictive and explanatory potential' in society and on an individual level (Davidov et al 2008, p5). Building on Rokeach's approach (1973), Schwartz's theory of basic human values includes four overarching values including ten motivationally distinct values considered to be recognised across cultures (Schwartz 1992). Self-transcendence includes values based on universalism and benevolence and conservation involves conformity, tradition and security. The self-enhancement value consists of achievement and power values with openness to change including stimulation and self-direction. Hedonism is considered to share features of both openness to change and self-enhancement (Davidov et al. 2008).

However, Schwartz's development and research of the configuration of the value domain is considered conflicting (Gouveia et al. 2014) and has been criticised for the level of freedom it gives to researchers when deciding boundaries amongst the basic values. There is also argument that the theory could limit scientific advancement when research needs to be meta-analysed as it 'lacks parsimony' (Gouveia et al 2014, p.41). Despite criticisms, the basic values theory has been used across multiple disciplines and its suitability for cross-cultural application has been thoroughly examined (Davidov et al 2008).

Human Values and Pro-Environmental Behaviour

Schultz and Zelezny (1999) further develop the concept that human values can be used to predict attitudes, in this case, when it comes to environment. Their research suggests that self-enhancement values, such as power, indicate an individual can still show concern for the 'harmful consequences' of neglecting the environment as it could have negative effects on themselves (p.263). Conservatism could also be used to predict environmental views and showed more anthropocentric concerns as opposed to acting for the sake of the environment.

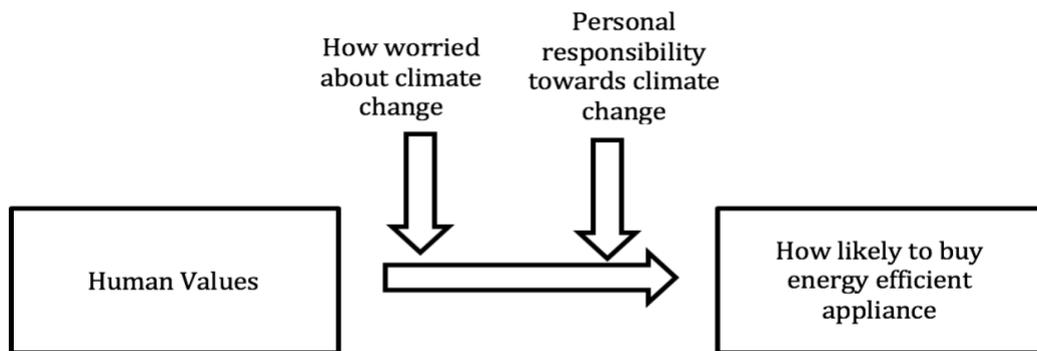
Poland and Pro-Environmental Behaviour

Literature around the influence of values on pro-environmental behaviour of Poles is limited and often focuses on attitudes and education (Van Hiel and Kossowska 2007; Kobierska et al. 2007). However, pro-environmental attitudes have been found to be positively related to self-transcendence (Schultz and Zelezny 1999; Stern and Dietz, 1994) which is a prevalent human value of Polish society (Błoński 2015).

Płatkowska-Prokopczyk's research (2017) showed that eco-friendly appliance purchases in Poland are connected with savings or lowering costs, not it's direct positive effect on the environment. As found in Błoński's study (2015), Poles hold high value in self-transcendence which indicates they are more likely to make pro-environmental actions (Steg et al. 2014).

Conceptual Framework

Figure 1: Conceptual Framework



METHODOLOGY

Data and Sample

The analysis in this research paper was based on existing subjective data. The data used was from the results of international comparative research from the European Social Survey (ESS), round 8 conducted in 2016. This was deemed a suitable basis as the objective of the ESS is to understand the shifts in attitudes, behaviours and social changes across Europe. The survey is representative of a country's population through the use of cross-sectional simple random probability sampling methods of all persons over the age of 15 who live in private households in each European country, irrespective of their citizenship status or native language (Europeansocialsurvey.org 2019). The biennial cross-national survey collects data through the use of computer-assisted personal interviewing (CAPI) where the respondents engage in face-to-face interviewing (Europeansocialsurvey.org 2019).

Measurement of Variables

Our independent variable included human values, dependent variable measured likelihood to purchase energy efficient home appliances with our moderating variable looking at climate change concern and responsibility. Control variables age and gender were also used.

The ESS uses a constructed scale of 21 statements to measure human values and answers were designed using a six-stage scale with 1 equating to 'very much like me' and then ranging to 6 meaning 'not like me at all'. For the purposes of this study, self-enhancement has been titled 'Fun and Adventures' and conservatism has been labelled 'Rules and Traditions'. Variables were created following the guidelines of Davidov et al. (2008).

The moderating variables were measured using two different scales. Respondents were asked 'To what extent do you feel a personal responsibility to try to reduce climate change?' and given a scale where 0 equalled 'not at all' and 10 meant 'a great deal'. Answers to 'How worried are you about climate change?' was measured on a scale of 1 to 6 ranging from 'not at all worried' and 'extremely worried'. For the dependent variable, respondents were asked 'If you were to buy a large electrical appliance for your home, how likely is it that you would buy one of the most energy efficient ones?' and to provide their answer on a given scale of 1 to 10.

Data Screening

It is important to assess the data prior to conducting any statistical analysis. As such, the survey results were tested for usability, reliability and validity. Non-engaged and missing responses were removed from the data set. As the missing data for Poland did not exceed 10%, imputation methods were not considered necessary. The final screened sample included 1174 responses.

Descriptive

The sample shows gender is split fairly evenly with females taking a slight lead at 51.4% and males 48.6%. All respondents were Polish and born in Poland. This study focused in particular on millennials which made up 36.5% of the sample. Most respondents said that they were likely to purchase energy efficient home appliances. For attitudes towards climate change the most common answer was "Somewhat worried" with 53%. Additionally, Polish people mostly value self-transcendence and self-enhancement when it comes to human values.

Reliability and Validity

Exploratory factor analysis is highly subjective, and the interpretation of results chiefly relies on researcher judgment (Henson and Roberts 2006). Additionally, where researchers face an already established data, Cronbach's alpha is more acceptable to test the reliability and validity rather than the EFA (Statistics Solutions 2019). For this reason, the Cronbach Alpha was used for the purposes of this study (please see table 1 for the outcome). A total of 17 statements of ESS's 21 statements to measure human values were used as these were found to be reliable. Nunnally (1978) has indicated 0.7 to be an acceptable reliability coefficient. Whilst this shows high reliability of the data,

result over 0.5 is considered satisfactory as it indicates a moderately reliable scale (Hinton et al. 2004).

Table 1: A table showing the results of the reliability and validity analysis using Cronbach's alpha.

Variable	Cronbach's Alpha
Fun and Adventure	0.783
Rules and Traditions	0.668
Self-transcendence	0.734
Openness to change	0.642

ANALYSIS AND FINDINGS

The purpose of this study is to look for an association between variables, more specifically, to predict values of an outcome variable from the dependent variables, therefore, the method chosen for testing the hypotheses was ordinary least square (OLS) regression (Hayes 2013). As this paper focuses on four categories of human values, 5 models were developed whilst running the regression in order to see what effect each one of the categories has on the outcome. Models 1-4 include one independent variable each and model 5 incorporates them all.

Additionally, for hypothesis two, Hayes (2013) process plug in was used in order to run a moderation test with two separate moderators concerning attitudes towards climate change (models 6-13).

N.1174	Mean	S.D.	1	2	3	4	5	6
Gender	1.51	0.5						
How likely to buy most energy efficient home appliance	8.16	2.009	.095**					
Millennials	0.37	0.482	-0.017	-.166**				
Self transcendence	2.07	0.611	-.127**	-.219**	.126**			
Openness to change	2.86	0.857	.088**	-0.006	-.248**	.295**		
Fun and Adventure	3.48	1.034	.182**	0.049	-.312**	.140**	.700**	
Rules and Traditions	2.29	0.758	-.103**	-.213**	.286**	.470**	-0.042	-.091**

** Correlation is significant at the 0.01 level (2-tailed). p> .001 * ; p> .01 ** ; p> .05 * ; p> .10

Correlations

Self-transcendence, as well as, rules and traditions have a significant negative correlation with buying energy efficient home appliances. On the contrary, openness to change and fun and adventure had no correlation with the dependent variable.

Table 2: The correlations of independent and dependent variable

	Model 1		Model 2		Model 3		Model 4		Model 5	
	DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances	
Variable	B	S.E.								
Constant	8.231***	0.272	7.979***	0.268	9.265***	0.281	8.917***	0.263	9.528***	0.339
Gender	0.392***	0.116	0.387***	0.117	0.275**	0.114	0.304**	0.114	0.245*	0.116
Millennials	-0.748***	0.123	-0.715***	0.126	-0.588***	0.118	-0.484***	0.123	-0.474***	0.129
Openness to change	-0.137*	0.07							-0.046	0.097
Fun and Adventure			-0.042	0.06						0.079
Self Transcendence					-0.632***	0.094			-0.481***	0.113
Rules and traditions							-0.455***	0.079	-0.274**	0.088
R Squared	0.039		0.037		0.072		0.063		0.08	
Adjusted R-Squared	0.037		0.034		0.07		0.061		0.076	
F-test	(3)16.033 p<.001		(3)14.854 p<.001		(3)30.336 p<.001		(3)26.273 p<.001		(6)16.979 p<.001	

N= 1174. p> .001 * ; p> .01 ** ; p> .05 * ; p> .10 †

Table 3: The regression of independent and dependent variables.

Variable	Model 6		Model 7		Model 8		Model 9	
	DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Constant	7.8940***	0.1862	7.8928***	0.1871	7.9737***	0.1863	7.9395***	0.1846
Gender	0.3429**	0.1137	0.3316*	0.1153	0.2624*	0.113	0.2643*	0.1127
Millennials	-0.7037**	0.1213	-0.6621***	0.1237	-0.5896***	0.1169	-0.4768**	0.1211
Personal responsibility towards climate change	0.1610***	0.0238	0.1650***	0.0238	0.1346***	0.0241	0.1529***	0.0235
Openness to change	-0.0864	0.0687						
Openness to change x Personal Responsibility (Interaction)	-0.0112	0.0266						
Fun and Adventure			-0.0032	0.0588				
Fun and Adventure x Personal Responsibility (Interaction)			-0.0328	0.0217				
Self-Transcendence					-0.5097***	0.0966		
Self-Transcendence x Personal Responsibility (Interaction)						0.0361		
Rules and Traditions							-0.4064***	0.0777
Rules and Traditions x Personal Responsibility (Interaction)							0.0287	0.0284
R Squared	0.076		0.0765		0.0964		0.97	
F-test	(5)19.258 p<.001		(5)19.3406 p<.001		(5)24.9355 p<.001		(5)25.0848 p<.001	

N=1174 p> .001 * ; p> .01 ** ; p> .05 * ; p> .10 †

Test of Hypotheses

H1: Human values will impact the purchasing preferences of energy efficient home appliances.

Hypothesis 1 assumed that human values will have a direct impact on purchasing energy efficient home appliances. Rules and traditions ($B=-0.4550$, $p<.001$) as well as self-transcendence ($B=-0.2740$, $p<.01$) were found to be significant but negatively related to purchasing energy efficient appliances. Openness to change ($B=-0.0460$, $p=.632$) together with fun and adventure ($B=-0.0540$, $p=.493$) are not significantly related to the same dependent variable. The findings for H1 are applicable only to 7.6% of model 5. Due to lack of significance and negative relation of the human values, hypothesis 1 is not supported.

H2: Attitudes towards climate change moderates the relationship between human values and purchasing energy efficient appliances.

Hypothesis two predicted that attitudes towards climate change will moderate the relationship between human values and purchasing energy efficient appliances. The study included two moderators: feeling personal responsibility towards climate change (models 6-9, table 4) and worrying about climate change (models 10-13, table 5).

Moderator: “To what extent do you feel a personal responsibility to try to reduce climate change?”

For all four human values: openness to change ($B=-0.0112$, $p=.6479$), fun and adventure ($B=-0.0328$, $p=.1322$), self-transcendence ($B=-0.0080$, $p=.8247$), as well as, rules and tradition ($B=0.0287$, $p=.3119$), no significance was found therefore, personal responsibility to reduce climate change does not moderate the relationship between human values and purchasing of energy efficient appliances. Even though self-transcendence ($B=-0.5097$, $p<.001$) together with rules and tradition ($B=-0.4064$, $p<.001$) are significantly related to purchase decisions, the negative coefficient suggests that people who do not exhibit these values as important can be more inclined to buy energy efficient home appliances. The highest model variance (amongst models 6-9) accounts for 9.7% of the dataset. This moderator shows no support for hypothesis 2.

Moderator: “How worried about climate change”

Similarly, for all four human values: openness to change ($B=-0.0207$, $p=.7832$), fun and adventure ($B=0.0023$, $p=.9714$), self-transcendence ($B=-0.0978$, $p=.3622$), as well as, rules and tradition ($B=0.0719$, $p=.3933$) there was no significance found therefore, worrying about climate change does not moderate the relation between human values and purchasing energy efficient appliances. Once again, two human values turned out to be of high significance to purchasing energy efficient appliances, however, the negative coefficient implies they are not relevant – self-transcendence ($B=-0.5457$, $p<.001$), rules and traditions ($B=-0.4424$, $p<.001$). People who do not consider them important can be more likely to reach the outcome of dependent variable. The highest model variance (amongst models 10-14) accounts for 8.4%. This moderator shows no support for hypothesis 2. Overall, none of the moderators showed any support for H2 therefore the whole hypothesis is not supported.

Table 4: The moderation of personal responsibility to climate change

Variable	Model 6		Model 7		Model 8		Model 9	
	DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Constant	7.8940***	0.1862	7.8928***	0.1871	7.9737***	0.1863	7.9395***	0.1846
Gender	0.3429**	0.1137	0.3316*	0.1153	0.2624*	0.113	0.2643*	0.1127
Millennials	-0.7037**	0.1213	-0.6621***	0.1237	-0.5896***	0.1169	-0.4768**	0.1211
Personal responsibility towards climate change	0.1610***	0.0238	0.1650***	0.0238	0.1346***	0.0241	0.1529***	0.0235
Openness to change	-0.0864	0.0687						
Openness to change x Personal Responsibility (Interaction)	-0.0112	0.0266						
Fun and Adventure			-0.0032	0.0588				
Fun and Adventure x Personal Responsibility (Interaction)			-0.0328	0.0217				
Self-Transcendence					-0.5097***	0.0966		
Self-Transcendence x Personal Responsibility (Interaction)						0.0361		
Rules and Traditions							-.4064***	0.0777
Rules and Traditions x Personal Responsibility (Interaction)							0.0287	0.0284
R Squared	0.076		0.0765		0.0964		0.97	
N=1174, p> .001 * ; p> .01 ** ; p> .05 * ; p> .10 †	.001		(5)19.3406 p<.001		(5)24.9355 p<.001		(5)25.0848 p<.001	

Table 5: The moderation of worriedness towards climate change

	Model 10		Model 11		Model 12		Model 13	
	DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances		DV: Energy Efficient Appliances	
Variables	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Constant	7.8807***	0.1877	7.8813***	0.1887	7.9524***	0.1867	7.9195***	0.1845
Gender	0.3578**	0.1146	0.3530**	0.1162	0.2739*	0.1135	0.2784*	0.1132
Millennials	-0.7284***	0.1221	-0.7044***	0.1247	-0.6070***	0.1178	-0.4941**	0.1219
How worried about climate change	0.3594***	0.0703	0.3712***	0.0697	0.2685**	0.0712	0.3495***	0.0689
Openness to change	-0.0856	0.0696						
Openness to change x Worried about climate (Interaction)	-0.0207	0.0752						
Fun and Adventure			-0.0196	0.0592				
Fun and Adventure x Worried about climate (Interaction)			0.0023	0.0634				
Self-Transcendence					-0.5457***	0.0976		
Self-Transcendence x Worried about climate (Interaction)					-0.0978	0.1072		
Rules and Traditions							-0.4424***	0.0783
Rules and Traditions x Worried about climate (Interaction)							0.0719	0.0842
R Squared	0.0607		0.0595		0.084		0.0845	
F-test	(5)15.0996 p<.001		(5)14.7842 p<.001		(5)21.4206 p<.001		(5)21.5697 p<.001	

DISCUSSION

Schultz and Zelezny (1999) have shown that human values can be used to predict attitudes and these attitudes have often been considered to play a role in energy saving behaviour. This research project emphasised the complexity around human values and their roles in purchasing behaviour. After the data was analysed, it was determined that human values do not play a role in the purchasing behaviour of energy efficient appliances in Polish millennials.

The data shows that all four overarching human values (self-transcendence, self-enhancement, conservatism and openness to change) are significant but they have a negative impact on the purchasing of energy efficient appliances. As such, respondents who did not relate themselves to these four values can be more inclined to purchase energy efficient appliances. However, this does not disprove that human values have absolutely no role in pro-environmental behaviour as purchasing home appliances is not an everyday action such as recycling. As Płatkowska-Prokopczyk's (2017) research has outlined, the motives behind the purchasing of eco-friendly appliances is often to do with cost cutting and not the impact on the environment. Although self-transcendence showed significance in the analysed data, it is not congruent with past literature on pro-environmental behaviour. However, human values and their relationship with energy-efficient purchasing behaviours has not been studied as much as their effect on pro-environmental behaviours such as recycling or walking to work. As Steg et al. (2014) detail in their research, the increased improvement of education of the benefits of energy efficient purchasing could help to increase consumer's interest in these products.

As Hong-Youl and Janda (2012) demonstrated, attitudes can have a stronger effect on consumers' intentions to purchase energy-efficient products. However, the results of this research paper indicate that human values do not play a role in the purchasing of energy-efficient products but could initiate a need to explore the attitudes of Polish society and if attitudes have a stronger link than human values.

This research paper has drawn attention to the complexity in understanding the societies of emerging economies. The misalignment in research may be due to previous research focusing primarily on attitudes, emotions and norms, not the direct impact of values. As discussed earlier, Fishbein and Ajzen's TRA model is useful in understanding the effect of attitudes and norms on behaviour. Although human values have shown no direct impact on purchasing energy efficient appliances in our study, looking into attitudes and norms and hence encompassing the full TRA model, may show that there is an impact on purchasing of energy efficient appliances.

The control variables were not included in our objectives or hypotheses as these areas have received plenty of research in the past (Alber and Roehr; Phillips et al 2018). However, our data shows females are more likely to purchase energy efficient appliances in comparison to males which is congruent with past research (Alber and Roehr 2006). According to Wells et al. (2011) people who show concern for climate change regularly take an action to minimise their impact on the environment. Attitudes towards climate change were used as a moderator in this study. Polish millennials were asked whether they are worried about the climate change and whether they feel personal responsibility towards it. Even though most of the surveyed participants feel 'somehow worried' about its effects, most of them feel that they are moderately responsible for helping the

environment.

The results of this research project imply that attitudes towards climate change do not moderate or have impact on purchasing preferences of energy efficient home appliances in Poland. Other researchers showed that attitudes and norms can have a direct impact on other pro-environmental behaviours such as recycling (Goldenhar and Connell 1993). This was also later confirmed by Downing and Ballantyne (2007). According to their study, people tend to mostly engage in low commitment behaviours such as recycling and this is especially prominent amongst Polish population (Dickinson et al. 2013). Low commitment can also be often associated with low financial cost. Previous research from Public Opinion Research Centre (2013) found that Poles are more driven by economic and health motives rather than reducing their environmental footprint which can further explain their participation in low commitment behaviours.

In-line with the existing literature, this research suggests that even though individuals care about climate change, they may want to fulfil their personal responsibility in different ways than purchasing energy efficient appliances because they simply favour some pro-environmental actions over others (Downing and Ballantyne 2007; Dickinson et al. 2013). Education about the risks and effects of climate change can be beneficial as it may help to increase the overall knowledge of personal contribution towards this global phenomenon (O'Connor et al. 1999, Cordero et al. 2008).

CONCLUSION

The aim of this research paper was to discover whether human values play a role in pro-environmental purchasing behaviours amongst Polish millennials. After a thorough analysis, it was found that there is no connection between human values and purchasing energy efficient appliances. Additionally, climate change attitudes do not moderate the previously mentioned relation.

This research shows that attitudes, linked to human values, do not have much influence over high commitment environmental behaviours (in this case purchasing energy efficient appliances). In the future, additional research in this area can be beneficial to help in creating effective sales or marketing campaigns for energy efficient appliances or pro-environmental behaviours in Poland. This comparative study answered the research questions and showed that human values have an impact on climate change beliefs, but news readership does not modify this relation significantly. It was revealed that Self-Transcendence is the common human value in both countries that has a positive correlation with climate change beliefs. The chosen group, Millennials, is significant but has a different relation in the two countries.

Furthermore, this study investigated the impact of human values on climate change beliefs. Further, the research examined the influence of news readership on this relationship. The data on two countries of a different level of engagement in environmental issues allowed for a comparative analysis.

MANAGERIAL IMPLICATIONS

According to the findings of this current study, human values do not play a role in pro-

environmental behaviours of Polish millennials. Further education about the climate change effects that can be beneficial in order to change their perception (O'Connor et al. 1999, Cordero et al. 2008). Therefore, marketing and sales professionals should focus on educating Polish millennials about their personal responsibility to help the environment and how their purchase choices can make a big impact on the planet. Rather than appealing to their shared human values or attitudes, an understanding of the impact of climate change is needed.

Our dataset shows that millennials are less likely to purchase energy efficient appliances which is an area that needs to be explored further, particularly for the interests of marketing professionals as research has shown millennials tend to show more concern towards climate change (Phillips et al. 2018). Hence, marketers need to focus on delivering environmental marketing messages in order to encourage millennials to purchase energy efficient appliances. Our findings also can be used by policy makers in order to motivate and educate millennials to gain pro-environmental purchasing behaviours of Polish people. As strong policy actions can provide more effective environmental messages in order to push consumers to take an action towards this type of purchase (Testa, Iraldo, Vaccari & Ferrari, 2015).

LIMITATIONS

As the data was collected by the European Social Survey team (2016) and not the researchers of this study, it creates a limitation around using only one source of data, especially as all of the analysed results were collected in 2016. A further longitudinal study over several different years can help to further understand the role of in human values and attitudes towards climate change. Moreover, the sample included only Polish millennials and extending this research to other countries or group ages could be beneficial. As the study looked at purchasing behaviours, future research should also consider income as a control or independent variable.

As previously discussed, there is very little in depth research into the role of human values amongst Polish society. Schultz and Zelezny's research (1999) may only be specific to the sample (USA, Canada and South America) used in their study. This may indicate why hypothesis one has not been supported by the research. For Poland, the data from ESS shows that interview times varied from 38 to 220 minutes, with 77.4% of interviews taking longer than 60 minutes in total. As the whole interview was not focused on energy efficient purchases and human values, perhaps a deeper understanding of objective one could be achieved through specialised interviews. This would allow respondents to give genuine focus on their current pro-environmental activities as well as any future purchases they intend to make.

Even though the analysed data showed no significance, additional research can help to discover whether human values actually have no influence over pro-environmental behaviours in Poland.

REFERENCES

- Aiken, L. and West, S. (1996). Multiple regression: Testing and Interpreting Interactions. Newbury Park: Sage Publications.
- Alber, G. and Roehr, U. 2006. Climate protection: What's gender got to do with it? *Women and Environments International Magazine* [online]. 70(71),17–20.
- Bang, H., Ellinger, A. E., Hadjimarcou, J. and Traichal, P. A., 2000. Consumer Concern, Knowledge, Belief, and Attitude toward Renewable Energy: An Application of the Reasoned Action Theory. *Psychology & Marketing*, 17(6), 449–468. Available from: https://s3.amazonaws.com/academia.edu.documents/52768042/_28sici_291520-6793_28200006_2917_3A6_3C449_3A_3Aaid-mar2_3E3.0.co_3B2-820170422-10604-a4x4ac.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1548533196&Signature=%2B9wUoBHbbfvYSZSJQt1bh9NUNPQ%3D&response-content-disposition=inline%3B%20filename%3DConsumer_concern_knowledge_belief_and_at.pdf [Accessed 16 January 2019].
- Błoński, Krzysztof. 2015. Changes and Differences in Poles' Hierarchy of Values – on Basis of the European Social Survey. *Folia Oeconomica Stetinensia*. 15. DOI: 10.1515/fofi-2015-0038.
- Broom, Glen M. 2013. Cutlip and Center's Effective Public Relations: International Edition, Pearson Education UK, 2013. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/bournemouth-ebooks/detail.action?docID=5137427>.
- Central Statistical Office, 2015. *ENERGY EFFICIENCY IN POLAND IN YEARS 2003-2013*. Warsaw: Statistics Poland. Available from: <https://stat.gov.pl/en/topics/environment-energy/energy/energy-efficiency-in-poland-in-years-2003-2013,5,11.html> [Accessed 10 January 2019].
- Choden, K., Bagchib, K, K., Udob, G, J., and Kirs, P, J. 2019. The influence of individual values on internet use: A multinational study. *International Journal of Information Management*. 46, 198–209.
- Cieciuch, J., Davidov, E., Algesheimer, R., and Schmidt, P. 2018. Testing for Approximate Measurement Invariance of Human Values in the European Social Survey. *Sociological Methods & Research*, 47(4), 665–686. DOI: [10.1177/0049124117701478](https://doi.org/10.1177/0049124117701478)
- Cordero, E. C., Todd, A. M. and Abellera, D., 2008. CLimate change education and the ecological footprint. *American Meteorological Society*, 865-872. Available from: <https://journals.ametsoc.org/doi/pdf/10.1175/2007BAMS2432.1> [Accessed 10 January 2019].
- Davidov, E. 2008. A Cross-Country and Cross-Time Comparison of the Human Values Measurements with the Second Round of the European Social Survey. *Survey Research Methods*, 2(1), 33-46. Available from: <https://ojs.ub.uni-konstanz.de/srm/article/view/365/1297>.

Davidov, E., Schmidt, P., and Schwartz, S. H. 2008. Bringing values back in: the adequacy of the European Social Survey to measure values in 20 countries. *Public Opinion Quarterly*[online], *72*(3), 420-445.

De Clercq, S. 2006. *Extending the Schwartz Value Theory for Assessing Supplementary Person-Organization Fit*[online]. Ghent: Ghent University.

Dickinson, J. E., Robbins, D., Filimonau, V., Hares, A., & Mika, M. (2013). Awareness of Tourism Impacts on Climate Change and the Implications for Travel Practice: A Polish Perspective. *Journal of Travel Research*, 52(4), 506–519. <https://doi.org/10.1177/0047287513478691>

Downing, P. and Ballantyne, J. 2007. *Tipping Point or Turning Point?* London: Ipsos-Mori Social Research Institute. Available from: http://www.lowcvp.org.uk/assets/reports/IPSOS_MORI_turning-point-or-tipping-point.pdf

Enerdata.net. 2012. Poland Energy Efficiency: Poland Energy Market. [online] Grenoble: Enerdata. Available at: <https://www.enerdata.net/publications/executive-briefing/poland-energy-information.html> [Accessed 26 January 2019].

Energy Efficiency Watch. 2013. *Energy Efficiency in Europe Assessment of Energy Efficiency Action Plans and Policies in EU Member States: Poland*[online]. Wuppertal: Energy Efficiency Watch. Available at: http://www.energy-efficiency-watch.org/fileadmin/eew_documents/Documents/EEW2/Poland.pdf

Ettenson, R., 1993. INTERNATIONAL MARKETING REVIEW. *Brand Name and Country of Origin Effects in the Emerging Market Economies of Russia, Poland and Hungary*, 10(5), 14-36. Available from: https://www.emeraldinsight.com/doi/pdfplus/10.1108/02651339310050057?casa_token=lcscVtkOiQgAAAAA:mvsL97TI6V3fxB3nMh3H5lh_4MTmVxmNNgFZnKe0fxEN_vZgZuvSOJN0WIRWG9kfRFd90Ws92Nj [Accessed 10 January 2019].

Europeansocialsurvey.org. (2019). *Survey Specifications European Social Survey (ESS)*. [online] Available from: https://www.europeansocialsurvey.org/methodology/ess_methodology/survey_specifications.html [Accessed 19 Jan. 2019].

Goldenhar, L. M. and Connell, C. M., 1992. J. ENVIRONMENTAL SYSTEMS. *UNDERSTANDING AND PREDICTING RECYCLING BEHAVIOR: AN APPLICATION OF THE THEORY OF REASONED ACTION*, 22(1), 325-343. Available from: https://triggered.clockss.org/ServeContent?url=http://baywood.stanford.clockss.org/%2FBWES%2FBAWOOD_BWES_22_1%2F92KUNXLTXC32RHD6.pdf [Accessed 10 January 2019].

Gouveia, V. V., Milfont, T. L., and Guerra, V. M. 2014. Functional theory of human values: Testing its content and structure. *Personality and Individual Differences*. 60, 41-47.

Hayes, A., F., 2013. *Introduction To Mediation, Moderation, And Conditional Process Analysis : A Regression-Based Approach*. New York : The Guilford Press.

Henson, R, K. and Roberts, J, K. 2006. Use of Exploratory Factor Analysis in Published Research: Common Errors and Some Comment on Improved Practice. *Educational and Psychological Measurement*[online].[66\(3\), 393-416](#).

Hinton, P. R., Browlow, C., McMurray, I. and Cozens, B., 2004. *Spss Explained*. New York: Routledge.

Hong-youl, H. and Swinder, J., 2012. *Journal of Consumer Marketing*. *Predicting consumer intentions to purchase energy-efficient products*, 29(7), 461-469. Available from: <https://www-emeraldinsight-com.libezproxy.bournemouth.ac.uk/doi/pdfplus/10.1108/07363761211274974> [Accessed 17 January 2019].

Hoskisson, R. E., Eden, L., Lau, C. M. and Wright, M., 2000. Strategy in Emerging Economies. *The Academy of Management Journal*, 43 (3), 249-267. Available from: https://www.jstor.org/stable/pdf/1556394.pdf?casa_token=8IZZJwGmu_oAAAAA:EKfOnTEnQ9mLBIJHVepXCaGL9l1Sos2_C6Ksl2RAoFC1FtsFjOR-7M7bnVqMt59RZ5thEvMe0VzdZj75NnBWotWWQnZ1E9csUyt0AgPY-EB4etCFBQ [Accessed 15 January 2019].

Izquierdo, I., Olea, J., and Abad, F, J. 2014. Exploratory factor analysis in validation studies: Uses and recommendations. *Psicothema*[online]. 26(3) 395-400.[DOI: 10.7334/psicothema2013.349](#)

Kobierska, H., Tarabuła-Fiortak, M., and Grodzińska-Jurczak, M. 2007. Attitudes to environmental education in Poland. *Journal of Biological Education*, 42(1), 12-18, DOI:[10.1080/00219266.2007.9656101](#)

Kowalewski, O., Talavera, O. and Stetsyuk, I., 2009. *Family Business Review*. *Influence of Family Involvement in Management and Ownership on Firm Performance: Evidence From Poland*, 23(1), 14-36. Available from: https://journals.sagepub.com/doi/pdf/10.1177/0894486509355803?casa_token=I_wL06oilVsAAAAA%3AsnSyZz3b6mWtmiHVdPObc3h8aP9Mdst6u5dU6wsgLrSn8ovzKd87n4K-Kvbz_aTw6Gy8TCZZjiM [Accessed 10 January 2019].

Linares, P. and Labandeira, X., 2010. ENERGY EFFICIENCY: ECONOMICS AND POLICY. *Journal of Economic Surveys*, 24 (3), 573–592. Available from: <https://www.iit.comillas.edu/pedrol/documents/energyefficiency.pdf> [Accessed 20 January 2019].

Madden, T. J., Ellen, P. S. and Ajzen, I., 1992. A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action. *Personality and Social Psychology Bulletin*, 18(1), 3-9. Available from: https://journals.sagepub.com/doi/pdf/10.1177/0146167292181001?casa_token=hyLBZQQBFKkAAAAA%3Ak5uW2CIDGLbFaGTMMjEmBpg-

JAHkdRrA1KwUAeBjTrxUBkSrhKGS-5GagP48JCLLNNixa25G8SY [Accessed 8 January 2019].

Mintel, 2012. Tourism and Climate Change - International - June 2012[online]. London: Mintel Group.

Nasa, 2019. *Global climate change: vital signs of the planet*. NASA, NASA. Available from: <https://climate.nasa.gov/evidence/> [Accessed 19 January 2019].

Nowak, S. 1989. The Attitudes, Values and Aspirations of Polish Society. *Sisyphus* 5, 133-162.

Nunnally, J. C. 1978. *Psychometric Theory*. 2nd edition. New York: McGraw-Hill.

O'Connor, R. E., Bord, R. J., and Fisher, A. 1999. Risk Perceptions, General Environmental Beliefs, and Willingness to Address Climate Change. *Risk Analysis*[online]. [19\(3\), 461-471](#).

Olsen, M. E., 1981. Consumer attitudes towards energy conservation. *Journal of Social Issues*, 37, 108-131. Available from: <https://spssi.onlinelibrary.wiley.com/doi/pdf/10.1111/j.1540-4560.1981.tb02628.x> [Accessed 12 January 2019].

Phillips, D., Curtice, J., Phillips, M. and Perry, J. (eds.). 2018). *British Social Attitudes: The 35th Report*. London: The National Centre for Social Research

Płatkowska-Prokopczyk, L. 2017. The Level Of Environmental Awareness As A Determinant Of Attitudes And Behaviors Developed By Inhabitants Of Towns And Villages – A Comparative Case Study. *Commission of Technical Rural Infrastructure*. 4(2), 1633-1647.

Poortinga, W., Steg, L., Vlek, C. and Wiersma, G., 2003. *Journal of Economic Psychology*. *Household preferences for energy-saving measures: A conjoint analysis*, 24, 49-64. Available from: https://www.euro-ciss.eu/fileadmin/user_upload/Redaktion/Seco@home/nachhaltiger_Energiekonsum/Literatur/Zahlungsbereitschaftsfragen/Poortinga.pdf [Accessed 10 January 2019].

Public Opinion Research Center. 2013. *Wartości i normy, Komunikat z badań* [online]. Warsaw: Public Opinion Research Center. Available from: http://www.cbos.pl/SPISKOM.POL/2013/K_111_13.PDF (Accessed: 26 January 2019).

Schultz, P. W. & Zelezny, L. (1999) Values as predictors of environmental attitudes: evidence for consistency across 14 countries, *Journal of Environmental Psychology*, 19(3), 255-265. DOI: 10.1006/jevp.1999.0129

Schwartz, S. H. 1992. Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology*, 25, 1-65. New York: Academic Press. DOI:10.1016/S0065-2601(08)60281-6

Schwartz, S. H. 2012. An Overview of the Schwartz Theory of Basic Values. *Online Readings in Psychology and Culture*, 2(1) 2-20. DOI: [10.9707/2307-0919.1116](https://doi.org/10.9707/2307-0919.1116)

Sheppard, B. H., Hartwick, J. and Warshaw, P. R., 1988. *Journal of Consumer Research*. *The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research*, 15(3), 325-343. Available from: https://www.jstor.org/stable/pdf/2489467.pdf?casa_token=t5aqA8JsqtgAAAAA:pKaASh3p_5UDk5rrQ_Ums2W0juHD73anKTFixQib7Kn5UgFf4pTujQBS3vRuJo7rzyeM7h0ETmd05gnjC-Ja4grN7HDi27zoLtSwA9tOsByHQRlJ2Q [Accessed 10 January 2019].

Statistic solutions, 2019. *EFA vs. Cronbach's Alpha*. Complete Dissertation, Statistics Solutions. Available from: https://www.statisticssolutions.com/efa-vs-cronbachs-alpha/?fbclid=IwAR2-014oV4_iYJQZZXKnnKpTdjgr8kL4svx7W1vHq6uqC_AS4KD9fc5nGk [Accessed 19 January 2019].

Steg, L., Bolderdijk, J. W., Keizer, K., and Perlaviciute, G. 2014. An Integrated Framework for Encouraging Pro-environmental Behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology*. 38: 104-115. DOI:[10.1016/j.jenvp.2014.01.002](https://doi.org/10.1016/j.jenvp.2014.01.002)

Stern, P. C. & Dietz, T. (1994) The value basis of environmental concern, *Journal of Social Issues*, 50(3), 65-84. DOI: 10.1111/j.1540-4560.1994.tb02420.

Stern, P. C. and Gardner, G. T., 1981. Psychological research and energy policy. *American Psychologist*, 36(4), 329-342. [Accessed 12 January 2019].

Templeton, T. C. and Fleischmann, K. R., 2011. *The Relationship Between Human Values and Attitudes Toward the Park51 and Nuclear Power Controversies*, 29(7), Available from: https://www.asis.org/asist2011/proceedings/submissions/172_FINAL_SUBMISSION.pdf [Accessed 17 January 2019].

Testa, F. *et al.* (2015) 'Why Eco-labels can be Effective Marketing Tools: Evidence from a Study on Italian Consumers', *Business Strategy & the Environment (John Wiley & Sons, Inc)*, 24(4), pp. 252-265.

The Polish National Energy Conservation Agency. 2018. Energy Efficiency trends and policies in Poland in years 2006-2016. Monitoring EU and national energy efficiency targets [online] Warsaw: The Polish National Energy Conservation Agency. Available from: <http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-poland.pdf> [Accessed 26 Jan. 2019].

Van Hiel, A., and Kossowska, M. 2007. Contemporary Attitudes and Their Ideological Representation in Flanders (Belgium), Poland, and the Ukraine. *International Journal Of Psychology* [online] 42(1) 16-26.

Weinbaum, C., Girven, R. and Oberholtzer, J., 2016. *The Millennial Generation: Implications for the Intelligence and Policy Communities*. Santa Monica: RAND. Available from: https://books.google.co.uk/books?hl=en&lr=&id=S_e3DQAAQBAJ&oi=fnd&pg=PP1&dq=The+Millennial+Generation%E2%80%AF:+Implications+for+the+Intelligence+and+Policy+Communities&ots=kEA7RS5Xop&sig=VqlF8BEAlv-

L2pcUj2llix8VMtl#v=onepage&q=The%20Millennial%20Generation%E2%80%AF%3A%20Implications%20for%20the%20Intelligence%20and%20Policy%20Communities&f=false [Accessed 3 January 2019].

Wells, V, K., Ponting, C, A., and Peattie, K. 2011. Behaviour and climate change: Consumer perceptions of responsibility. *Journal of Marketing Management*, 27:7-8, 808-833, DOI: [10.1080/0267257X.2010.500136](https://doi.org/10.1080/0267257X.2010.500136)