EG | Estudios Gerenciales

Journal of Management and Economics for Iberoamerica

Research article

Explaining green consumption: A cross-cultural study on young adult consumers through a multi-group comparison

Judith Cavazos-Arroyo*
Professor, Department of Economic and Management Sciences, Universidad Popular Autónoma del Estado de Puebla, Puebla, México.
judith.cavazos@upaep.mx

Ana Paola Sánchez-Lezama
Professor, School of Sciences, Universidad de las Américas-Puebla, Puebla, México.
paola.sanchez@udlap.mx

Abstract
This research compared, through a multigroup analysis, green consumption among young adult consumers in Mexico and Spain. Thus, the effect of their connection to nature, environmental citizenship, activism and environmental social identity on green consumption was analyzed. A quantitative, explanatory, and cross-sectional methodology was developed, which involved the application of an instrument to 447 Mexican and 120 Spanish young adults. The primary results related to green consumption did not suggest different environmental behavior patterns between the samples. When combined, it was found that environmental social identity and environmental citizenship did not always translate into green consumption. However, young adult consumers who were more connected to nature were more likely to consume eco-friendly products.

Keywords: environmental behavior; consumer behavior; green consumption, sustainability.

Explicando el consumo verde: un estudio transcultural sobre consumidores adultos jóvenes a través de una comparación multigrupo

Resumen
La investigación comparó, a través de un análisis multigrupo, el consumo verde entre consumidores adultos jóvenes en México y España. Así, se analizó el efecto de su conexión con la naturaleza, ciudadanía ambiental, activismo e identidad social sobre el consumo verde. Se desarrolló una metodología cuantitativa, explicativa y transversal e involucró la aplicación de un instrumento a 447 adultos jóvenes mexicanos y 120 españoles. Los resultados primarios relacionados con el consumo verde no sugirieron patrones de comportamiento ambiental diferentes entre las muestras. Cuando se combinaron, se encontró que la identidad social ambiental y la ciudadanía ambiental no siempre se traducían en consumo verde. Sin embargo, los consumidores adultos jóvenes que estaban más conectados con la naturaleza tenían más probabilidades de consumir productos amigables con el ambiente.

Palabras clave: comportamiento ambiental; comportamiento del consumidor; consumo verde; sustentabilidad.

Explicando o consumo verde: um estudo transcultural de consumidores adultos jovens através de uma comparação multigrupo

Resumo
A pesquisa comparou, através de uma análise multigrupo, o consumo verde entre consumidores adultos jovens no México e na Espanha. Assim, foi analisado o efeito de sua conexão com a natureza, a cidadania ambiental, o ativismo e a identidade social sobre o consumo verde. Uma metodologia quantitativa, explicativa e transversal foi desenvolvida e incluiu a aplicação de um instrumento a 447 jovens adultos mexicanos e 120 espanhóis. Os resultados primários relacionados ao consumo verde não sugeriram padrões diferentes de comportamento ambiental entre as amostras. Quando foram combinados, descobriu-se que a identidade social ambiental e a cidadania ambiental nem sempre se traduziam em consumo verde. No entanto, os consumidores adultos jovens, mais ligados à natureza, tinham maior probabilidade de consumir produtos ambientalmente amigáveis.

Palavras-chave: comportamento ambiental; comportamento do consumidor; consumo verde; sustentabilidade.

UNIVERSIDAD ICESI

1. Introduction

Advances in technology and communication have enabled business enterprises to address the challenges that arise when finding routine operations that enhance productivity in a sustainable manner (Geetha & Laxman, 2017). The products we buy, eat, and use have an important impact on the environment. Many of the current trends in global consumption are unsustainable, resulting in massive damage and destruction of ecosystems. Thus, some emerging green industries are seeking to protect the environment through the adoption of environmentally sustainable lifestyles and human actions, encouraging consumers to spend more on green products (Spielmann, 2020).

Green consumption is a form of consumption compatible with using eco-friendly products that are harmless to the environment and consumers in their production, use, or disposal (Geetha & Laxman, 2017). Despite increased eco-awareness during the past few decades, considerable barriers (e.g., motivational and practical complexity of green consumption) to the dissemination of more ecologically oriented consumption styles still exist in Western markets (Moisander, 2000). To address these environmental issues, consumers must be motivated to make ethically conscious decisions toward more sustainable consumption, which in turn will persuade producers and marketing intermediaries to re-constitute their business models with an orientation towards sustainability.

Research on sustainable consumption has changed its focus from exploring the consumer profile towards finding a deeper understanding of different ecological behaviors that can lead to green consumption (Peattie, 2010). Nevertheless, further exploration of other antecedents that could impact this type of consumption has been recommended (Whitburn et al., 2020). Also, environmental citizenship and activism have become critical aspects in leading people to act as agents of change for the solution of environmental problems; however, the research shows a gap regarding the understanding of its effects towards behaviors such as consumption, since many people do not feel sufficiently empowered about their decision-making on socio-environmental issues, and a growing apathy towards environmental mobilization and commitment has been identified (Hodson, 2014; Reis, 2020). Therefore, there is a call for more research to close the gap towards a deeper understanding of the antecedents of green consumption.

More specifically, some research in the management field have used Spanish and Mexican samples to compare how generalizable or contextualized the research variables can be (Ayuso & Navarrete-Báez, 2018; Ueltschy, 2010); although these countries share diverse linguistic and cultural traits (Ueltschy, 2010), they also present significant differences in their socioeconomic, institutional, and political conditions (Ayuso & Navarrete-Báez, 2018). Therefore, this research focuses on understanding some pro-environmental behaviors in young adults from these countries. When the samples are similar in some respects and different in others, it is suggested to develop a comparative investigation, the differences are usually the focus of the examination to understand the underlying structure that allows the variation (Routio, 2007).

The objective of this research is to explore and compare the decision to consume green products related to their connection to nature, environmental citizenship, activism, and environmental social identity among young Mexican and Spanish buyers to provide information on the effect of these variables on green consumption. Therefore, a multigroup structural equation model (SEM) with R statistical software was used to analyze the results. The purpose of this study is to contribute to the intellectual bases of consumer behavior and pro-environmental actions to help policy makers and market participants in formulating strategies to encourage green consumption in young adults. The thesis of the research is that although consumers might be concerned about the environment, they struggle to engage in green consumption behavior (Young et al., 2010). Thus, there is a need to promote the perceived effectiveness of the consumer, convincing him/her that green consumption could really have an impact on the environment (Gleim et al., 2013).

In addition to the introduction, this document includes five more sections: The second contains the literature review in which the main concepts are defined, and the hypotheses are formulated. Next, the methodological process and the statistical methods used are described. The fourth section shows the results obtained, and the last section presents the conclusions and managerial implications.

2. Theoretical background and hypotheses development

The term *green consumption* has often been used interchangeably with other terms, such as socially responsible consumption, ecologically conscious consumption, environmentally responsible consumption, environmentally friendly consumption, and pro-environmental consumption (Pagiaslis & Krontalis, 2014). In this research, green consumption is understood as the consumption of environmentally friendly products (Côrtes et al., 2016), considering an effort to balance demand, consumption processes, and sustainable development (Sun et al., 2019). It is expected that green consumption contributes to solving problems regarding overexploitation of natural resources (Pagiaslis & Krontalis, 2014) due to the desire of consumers to meet their individual needs differently and to contribute to the welfare of society (Nguyen et al., 2019).

Previous studies about green consumption have been considered to explain the phenomenon in terms

of demographic variables. In this research, we control it through the variables of age and gender. There is no agreement on the age group most prone to green consumption. Some studies have concluded that green consumers are younger (Akehurst et al., 2012), while others claim that they are older (Martins Gonçalves & Viegas, 2015). Regarding gender, some studies have suggested that women are more likely to demonstrate green consumption and recycling (Mainieri et al., 1997; Straughan & Roberts, 1999; Laroche et al., 2002); however, others did not find significant differences among genders (Paço & Gouveia, 2016).

2.1 Connection to nature and green consumption

Connection to nature has become increasingly useful in the study of environmental behavior, as well as in psychological health and well-being (Nisbet & Zelenski, 2013; Whitburn et al., 2020). It is rotted in the primitive beliefs that motivate pro-environmental attitudes and behaviors (Geng et al., 2015). Connection to nature refers to the positive experiential and emotional connection that an individual achieves with nature (Mayer & Frantz, 2004). Schultz (2001) conceptualizes it as the extent to which an individual feels that he or she is part of nature. The idea implies interest in and affinity with the natural world (Wilson, 1984).

Previous research with young adults has found that connection to nature is useful for predicting sustainable pro-environmental values and behaviors, subjective well-being, and concern for the environment (Mayer & Frantz, 2004; Nisbet & Zelenski, 2013; Pereira & Forster, 2015). However, although a significant association has been found among the connection to nature value and pro-environmental behaviors (Davis et al., 2009; Dutcher et al., 2007), values toward nature differ among cultures (Boeve-de Pauw & Van Petegem, 2013), and green consumption is affected directly and indirectly by values and beliefs (Stern et al., 1995). Therefore, it is possible to assume that:

H1: Connection to nature positively affects green consumption of young adults in Mexico and Spain.

2.2 Connection to nature and environmental social identity

Social identity can be understood as an element of the self-concept that assumes and values belonging to a certain social group (Tajfel, 1978). Environmental social identity implies the value and emotional importance that a person attributes to being part of the initiatives that seek to change a social system towards pro-environmental behaviors (Schulte et al., 2020). The value of feeling connected to the natural environment can encourage important environmental social identity mechanisms, thus generating a positive impact on people's well-being and quality of life (Olivos & Clayton, 2017). That is, when people perceive themselves as connected and interdependent with nature, they can develop an identity that empathizes with pro-environmental efforts (Anđić & Hadela, 2021). Thus, this research suggests the following hypothesis:

H2: Connection to nature positively affects environmental social identity of Mexican and Spanish young adult consumers.

2.3 Environmental social identity and green consumption

One challenge in contemporary society is the construction of positive and lasting identities (Ryan & Deci, 2003). However, the environmental identity has changed in recent decades (Gallup, 2016). An environmental social identity is a psychological mechanism that facilitates assimilation to the norms of the group and drives individuals to engage in pro-environmental behaviors, including green consumption (Fielding & Hornsey, 2016). Thus, environmental social identities might influence behavior across different contexts (Ellemers et al., 2002), whether with abundant or limited resources. "Social identity processes may be important for collective action problems because they can influence ascriptions of responsibility for responding to large-scale problems with diffuse causes and solutions" (Chapman, 2018, p. 52). Thus, the environmental social identity approach implies that membership to certain groups influences one to maintain a positive self-concept of constructive environmental behaviors.

For instance, Fielding and Hornsey (2016) studied how social identities can motivate group members to act in more or less pro-environmental ways. Additionally, Klas (2017) found that environmental social identity is a strong predictor of green consumption. Most of the empirical studies related to environmental social identity have focused on clients of a company (Venhoeven et al., 2016) and individuals of both genders and all ages living in particular contexts (Venhoeven et al., 2016; Klas, 2017); therefore, it is a field that should be explored among other populations, such as young adults. Consequently, we propose the following hypothesis:

H3: Environmental social identity positively affects green consumption of young adults in Mexico and Spain.

2.4. Environmental social identity and environmental citizenship

Environmental citizenship concerns the "various actions that people take in favor of environmental conservation, mostly in the public sphere" (Asah et al., 2018, p. 809). It examines how environmental commitment arises or is sustained by individuals (Raineri & Paillé, 2016). It assumes environmental advocacy, direct involvement, voluntary actions, learning about environmental phenomena, political-ecological actions (i.e., voting according to pro-environmental inclinations),

and responsibilities derived from environmental rights as a matter of natural justice (Stern et al., 1999; Dobson, 2007). Social identity and a sense of belonging are important to promote environmental citizenship. When individuals identify with a group, they are more likely to engage in community participation, to think in terms of the collective benefits and costs, and to demonstrate respect for others and self-restraint (Song et al., 2019). From these constructs, we suggest the following hypothesis:

H4: Environmental social identity positively affects environmental citizenship in Mexican and Spanish young adult consumers.

2.5. Environmental social identity and environmental activism

Environmental activism refers to engagement in behaviors to preserve or improve the environment and increase public awareness of environmental issues (Seguin et al., 1998). Such behaviors include participating in protests, petitioning, rallying, creating blockades, performing revegetation work, and educating the public (Fielding et al., 2008). Thus, environmental activism is understood as a public environmental behavior that uses collective actions to influence policies or management decisions in favor of pro-environmental protection behaviors (Dono et al., 2010). However, the citizens of only a few countries express a higher priority for environmental considerations over economic ones. For instance, the European countries in which citizens prioritize environmental issues are Norway, Switzerland, Sweden, and Austria (Goldman et al., 2020). Likewise, environmental social identity might influence environmental activism. Previous research in the field has studied the effects among social identity, environmental activism, and environmental behavior, and significant relationships have been found identifying that environmental group membership is a strong predictor of intention to engage in environmental activism (Fielding et al., 2008; Dono et al., 2010). For instance, research conducted on young adults in Australia revealed an indirect and significant relationship between social identity and environmental behavior mediated by citizenship, which was the best predictor of environmental activism (Dono et al., 2010).

Paço and Gouveia (2016) introduced gender as a factor that might influence environmental behaviors among Portuguese consumers. Thus, despite the individual perceived environmental responsibility, these researchers found low levels of environmental activism and civic participation in environmental causes. Regarding gender, it was found that both women and men show similar levels of environmental activism. Consequently, we propose the following hypothesis:

H5: Environmental social identity positively affects environmental activism in Mexican and Spanish young adult consumers.

2.6. Environmental citizenship and environmental activism

Environmental citizenship exhibits a non-territorial nature because the effect of environmental problems exceeds national limits (Dobson, 2003). It has become a relevant topic for environmentalists in order to promote a change of behavior towards more sustainable lifestyles (Seyfang, 2006). Thus, a significant relationship among environmental citizenship and activism opens opportunities in the public sphere to create the emergence of a diverse civil society that is active in different domains (Fadaee, 2017), including consumption. Therefore, non-activist behaviors in the public sphere of environmental citizenship might affect collective actions and active involvement in organizations and demonstrations, as in the case of environmental activism (Stern, 2000). Accordingly, we suggest the following hypothesis:

H6: Environmental citizenship positively affects environmental activism in Mexican and Spanish young adult consumers.

2.7. Environmental citizenship and green consumption

Additionally, environmental citizenship works on a deeper level that affects people's individual behavior (Young et al., 2010), such as consumer intentions and practices. Jagers et al. (2014) found among the Swedish population that people oriented to ecological citizenship are more likely to develop pro-environmental behaviors and adopt environmentally friendly habits in their daily lives. In contrast, in the study by Hamilton et al. (2018), the participants described a wide range of behaviors, motivations, benefits, and assumptions about being green citizens. However, although they were familiar with green consumption, they were not sufficiently informed about what it means to be "green." The authors recommended that green consumption should not be applied alone; it requires developing aspects such as environmental citizenship and new skills applied to one's personal lifestyle. Hence, we test the following hypothesis:

H7: Environmental citizenship positively affects green consumption in Mexican and Spanish young adult consumers.

2.8. Environmental activism and green consumption

Environmental activism is more difficult to implement in some countries as an ecological solution due to a lack of organizational capabilities and societal engagement (Yang & Weber, 2019). Enthusiastic environmental activism suggests the regulation of personal consumption (Horton, 2003) and political consumerism (e.g., boycotts) as solutions to environmental problems in which the commodities become the core of the resolution of moral disputes and dilemmas in the everyday

lives of environmental activists (Dolan, 2002). Brochado et al. (2017) conducted research including participants in Portugal of both genders and a wide range of ages, and found that activism was the strongest predictor of ecologically conscious consumer behavior. Research developed in Thailand found that male young adults were more likely to participate in environmental activism and cultivate pro-environmental behaviors than female young adults (Piyapong, 2020). Regarding environmental activism, the following hypothesis is established:

H8: Environmental activism positively affects green consumption in Mexican and Spanish young adult consumers.

3. Method

To examine the previously stated hypotheses, an explanatory and cross-sectional design was developed. Computer-Assisted Personal Interviews (CAPI) were applied through tablets to two samples, one Mexican and the other Spanish. Hence, we used a sample of convenience and surveyed 447 Mexican and 120 Spanish young adult university students, and each interview lasted between 10 and 15 minutes. The instrument comprised measures of constructs (Appendix, Table A1). Thus, connection to nature was measured with the scale of four items developed by Guckian et al. (2017). Also, environmental social identity and environmental activism were measured with the scales developed by Klas (2017), with five items on each. Environmental citizenship was measured using the scale by Larson et al. (2015) with four items, and lastly, the scale by Côrtes et al. (2016) was used to measure green consumption with five items. Participants answered all items using a five-point Likert scale, except for environmental social identity and environmental activism, which were answered with a seven-point Likert scale. We added age and gender as control variables, thus they are held constant in our research. Therefore, both are variables of no interest to the objectives of the study; nevertheless, they are controlled because they might affect green product consumption.

3.1. Procedures of statistical analyses

Our Mexican sample comprised 447 university students aged 18 and above and our second sample comprised 120 university students of the same minimum age who resided in Spain. This section describes the steps involved in testing the cross-country measurement invariance of latent green consumption, which tested the survey data in multi-group structural equation modeling using R statistical software based on covariance. The approach was used to compare country differences with respect to the green consumption of Mexican young adults, controlling for age and gender. Structural

equation modeling (SEM) was performed to execute the latent mean analysis.

Measurement invariance is a prerequisite for comparing different groups (Chen, 2007; Kuhn & Holling, 2009). Inference problems occur when sets or categories are compared based on instruments that do not measure the same constructs, which makes the conclusions drawn from the study more likely to be biased or invalid if the variables do not mean the same across groups. Therefore, measurement invariance must be tested to establish whether an instrument provides a valid basis for comparing group differences (Gregorich, 2006). The progressive analytical strategy in multigroup SEM involves the examination of configurational invariance, metric invariance, and scalar invariance to evaluate the equivalence of the groups (Jang et al., 2012; Kline, 2015). Thus, a series of hierarchically nested models were examined, with increasing levels of cross-group equality constraints (Gregorich, 2006; Kuhn & Holling, 2009).

The first level of measurement invariance is configural invariance (Horn et al., 1983). This level requires that the proposed model fit all groups. In other words, aside from the overall model fit, all items must load significantly and substantially on the intended factor for every country. Substantial standardized item loadings are those above 0.3 (Brown, 2015). The second level of invariance, metric invariance, means that the factor loadings do not differ significantly across countries (Jang et al., 2012). Then, the structural relationships between variables may be examined if the conditions of metric invariance are satisfied (Steenkamp & Baumgartner, 1998). Researchers can compare the path coefficients via multigroup analysis. Third, scalar invariance is proved at the intercept level, with equality constraints for the item intercepts (Jang et al., 2012). If partial measurement invariance is established and full invariance is confirmed, meaning equal mean and variances across groups, the researchers can pool the data from different groups and benefit from the increase in statistical power. However, full measurement invariance does not imply a lack of difference in path coefficients. Thus, the latter must be tested by multigroup analysis technique. Only when the structural models are also invariant (no significant differences in path coefficients) can the researcher focus on the aggregate-level analysis with pooled data (Hair et al., 2018). Statistical analyses were conducted using R (version 3.1, Lavaan 0.5–17).

3.2. Model fit

Strictly speaking, the Likert scale is an ordinal scale (Wu & Leung, 2017). Thus, all variables in the model were analyzed as categorical (binary or ordinal) except for age, so the diagonally weighted least squares (DWLS) estimator was used (Jöreskog, 1990). In structural equation modelling (SEM), the criteria used to determine the fit between the empirical data and the proposed

model were the cut-off values of model fit indices recommended by Byrne (2010) and Kline (2015). The goodness-of-fit measures used here are the ratio of chi-square to the degrees of freedom, the root mean square error of approximation (RMSEA), and the comparative fit index (CFI). Models with x2/df ≤ 5, RMSEA ≤ .08, and CFI ≥ .9 are generally considered to have an acceptable fit. The measurement models were evaluated for convergent and discriminant validity. Convergent validity was assessed by factor loading (threshold of 0.5 and above) (Johnson & Stevens, 2000) and composite reliability (between 0.50 and 0.60) (Cheah et al., 2010). For satisfactory discriminant validity, the square root of AVE should be greater than the correlation between the constructs (Bhattacherjee & Premkumar, 2004). The invariance tests claimed are supported with the non-significant result of the chi-square difference test and/or the change value of a CFI smaller than 0.01 (Byrne, 2010).

3.3. Path coefficients comparisons

After the invariance tests, country differences were tested by constraining the structural model parameters to be equal in the two groups and by comparing the constrained model with a model in which parameters for Mexico and Spain can vary (Holmbeck, 1997). When the equality constraints resulted in a significant deterioration in the model fit, as indicated by a significant change in χ^2, it shows that the country modifies the constrained model parameter out.

4. Results

4.1. Descriptive statistics

Demographic variables by country are presented in Table 1. The female population density was higher for both countries. The population is a bit older in Mexico than in Spain, with a mean of 23.19 years and 21.13 years, respectively.

4.2. Multigroup test and measurement invariance

The moderating effect of country was studied to analyze if there is a difference on the relationship between the constructs (connection to nature, environmental citizenship, activism, and environmental social identity) and the dependent construct (green consumption). Thus, we used a multigroup analysis procedure given the categorical type of the variable country. Quantification of measurement invariance is pivotal before examining the possibility of country moderating effect.

Before undertaking the measurement invariance tests, the structural equation modelling analyses were separately conducted for the Mexico and Spain groups. The analyses may reveal whether the model can represent the same number of common factors across divergent groups (Gregorich, 2006). According to Lin et al.'s tests of reliability and validation (2013), in this study a model was identified with five latent variables. As shown in Table 2, factor loadings range from 0.618 to 0.941 for the Mexican group, and from 0.483 to 0.900 for the Spanish group. Table 3 displays the model fit indices for both countries. According to the criteria recommended by Byrne (2010), the model fit indices for both groups suggest a good data-model fit (i.e., x2/df < 5, RMSEA < 0.05, CFI > 0.90).

Table 1. Demographic characteristics by country.

	Mexico	Spain
Gender (%)		
Female	51.8	58.3
Male	48.2	41.7
Age		
n	447	120
Minimum	18	18
Maximum	26	25
Mean	23.19	21.13
Standard deviation	3.594	3.313

Source: own elaboration

Before conducting path coefficients comparison, several invariance tests were carried out. First, multigroup SEM was implemented to assess configural invariance by evaluating the two groups without constraining equality across the groups. In other words, the same measurement model was examined separately for each group. As shown in Table 3, the configural invariance test showed high similarity between the structural patterns across groups with acceptable goodness-of-fit (χ^2 = 737.866, df = 442, χ^2/df = 1.669, CFI = 0.993, RMSEA = 0.049). Second, metric invariance was examined by comparing two nested models. The first one consisted of a baseline model (factor loadings are freely estimated across multiple groups) and the second one consisted of the invariance model (constrains the factor loadings as equivalent across the groups). The results of the metric invariance model (χ^2 = 854.716, df = 458, χ^2/df = 1.866, CFI = 0.991, RMSEA = 0.056) (Table 3) indicates an acceptable goodness of fit. The non-significant (p value = 0.7747) results of the chi-square from ANOVA test for comparing the nested models supports metric invariance. Thus, the latent scale's metric is "invariant" across the groups. Third, a restriction on the intercepts was applied across groups to be invariant for the scalar invariance test. Table 3 shows the model fit indices of the scalar invariance model (χ^2 = 800.795, df = 524, χ^2/df = 1.528, CFI = 0.994, RMSEA = 0.043). The chi-square difference test between the metric model and the scalar model is non-significant (p value = 0.198), and the change value of CFI ($\triangle$CFI = 0.003) is smaller than 0.01, supporting the scalar invariance hypothesis (Cheung & Rensvold, 2002). Thus, the three invariance tests were fulfilled.

Table 2. Standardized factor loadings for SEM model by country.

		Mexico		Spain	
		Standardized load	p value	Standardized load	p value
Connection to nature	CN1	0.667	0.000	0.549	0.000
	CN2	0.717	0.000	0.536	0.000
	CN3	0.723	0.000	0.649	0.000
Environmental social identity	ESI1	0.817	0.000	0.822	0.000
	ESI2	0.941	0.000	0.893	0.000
	ESI3	0.709	0.000	0.579	0.000
Environmental citizenship	EC1	0.618	0.000	0.483	0.000
	EC2	0.641	0.000	0.558	0.000
	EC3	0.788	0.000	0.728	0.000
	EC4	0.826	0.000	0.9	0.000
Environmental activism	EA1	0.782	0.000	0.789	0.000
	EA2	0.794	0.000	0.742	0.000
	EA3	0.866	0.000	0.527	0.000
	EA4	0.813	0.000	0.582	0.000
	EA5	0.864	0.000	0.589	0.000
	EA6	0.751	0.000	0.678	0.000
Green consumption	GC1	0.82	0.000	0.862	0.000
	GC2	0.836	0.000	0.715	0.000
	GC3	0.83	0.000	0.828	0.000
	GC4	0.809	0.000	0.716	0.000
	GC5	0.816	0.000	0.873	0.000

Source: own elaboration

**Table 3.** Model comparison: single countries, invariance tests and model fit changes.

| Nr.	Model description	Compared model	x^2 (p)	df	CFI	RMSEA	ΔCFI
1	Single country Mexico		461.916 (0.001)	221	0.994	0.050	-
2	Single country Spain		275.95 (0.007)	221	0.989	0.046	-
3	Configural		737.866 (0.000)	442	0.993	0.049	-
4	Metric	3	854.716 (0.000)	458	0.991	0.056	-0.002
5	Scalar	4	800.795 (0.000)	524	0.994	0.043	0.003
6	Intercepts constrained		751.183 (0.000)	508	0.994	0.041	
7	Full measurement invariance	6	764.715 (0.000)	513	0.994	0.042	0.000

Source: own elaboration

The procedures support the presence of full measurement invariance. Therefore, the multigroup analysis technique has been used. Thus, according to the country analyzed, the constructs referring to connection to nature, environmental citizenship, activism, and environmental social identity may affect green consumption differently. Hence, in Mexico (Figure 1), connection to nature has been confirmed as the only dimension to have an effect in green consumption. Environmental citizenship and environmental activism are the least relevant dimensions for green consumption. Environmental citizenship showed a relation with environmental activism. Also, environmental social identity has been proven as the most important dimension for environmental citizenship, while connection to nature appeared to have an effect with environmental social identity. Similarly, connection to nature has turned out to be the most important dimension for green consumption among the Spanish young adults (Figure 2). Likewise, environmental citizenship and environmental activism are the least relevant constructs for green consumption. Consistently, Spain environmental citizenship has a relation with environmental activism. Also, environmental social identity has been proven as the most important dimension for environmental citizenship. Finally, connection to nature has demonstrated an effect on environmental social identity. Thereafter, the path coefficients for each of the sub-samples were compared for significant differences using multigroup analysis. As can be seen in Table 4, there is no significant contrast

between the path coefficients, thus we cannot confirm the moderating effect of country.
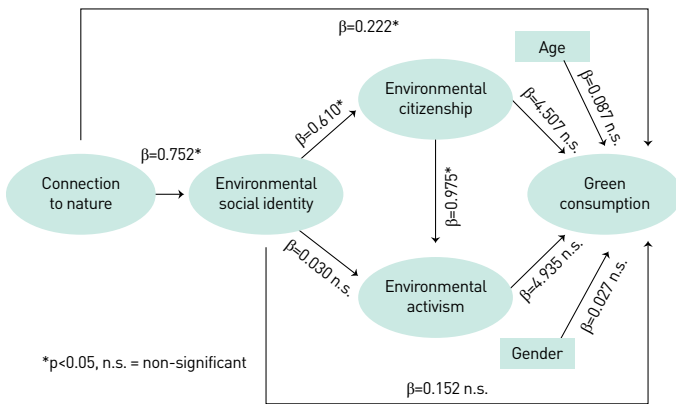
Figure 1. Contrasted model of green consumption with standardized path coefficients for Mexico.
Source: own elaboration
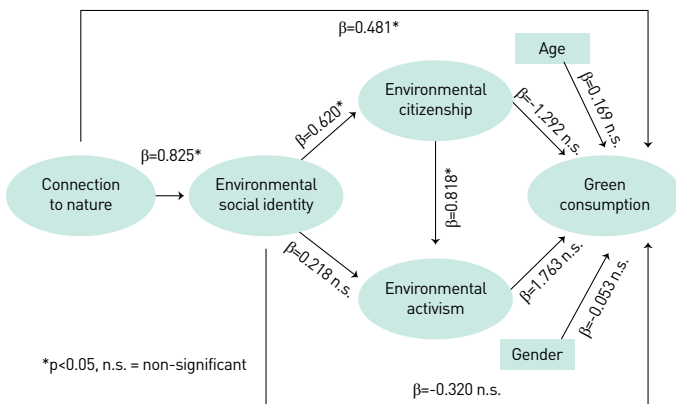
Figure 2. Contrasted model of green consumption with standardized path coefficients for Spain.
Source: own elaboration

From the major constructs under investigation in each country and their viable relation with green consumption, only connection to nature had a positive significant relationship with the green behavior. In this cross-cultural study, the primary outcomes related to green consumption were similar among young adults from different countries, suggesting no differential environmental behavior patterns between Mexican and Spanish samples. Since the coefficients would not vary by country, it would be convenient to analyze the pooled data in a single global model. After the confirmation of three invariance tests, the full measurement invariance, and the lack of significant differences in path coefficients (Table 4), we can conclude that country did not moderate the pathways, contrary to predication. Then, we focus on the analysis of pooled data.

4.3 Pooled data analysis

Based on the aggregate-level analysis with pooled data (Figure 3 and Table 5), age has significant effect on green consumption. Particularly, connection to nature is the only latent variable with direct effect on green consumption. Additionally, environmental citizenship showed a positive effect on environmental activism, which is consistent with the literature. Also, environmental social identity affects environmental citizenship positively, while connection to nature and environmental social identity are positively correlated. The positive association indicates that the more connected people are to nature, the more they identify with environmentalists. The results of the pooled data model (χ^2 = 598.494, df = 221, χ^2/df = 2.70, CFI = 0.991, RMSEA = 0.055) indicate an acceptable goodness of fit.

Table 4. Multigroup comparison.

Regression			Country	Regression coefficients ß	Chi square difference test p value
Connection to nature	→→→	Environmental social identity	Mexico	0.825*	0.3636
			Spain	0.752*	
Environmental social identity	→→→	Environmental citizenship	Mexico	0.610*	0.6658
			Spain	0.620	
Environmental citizenship	→→→	Green consumption	Mexico	-4.507	0.6154
			Spain	-1.292	
Environmental social identity	→→→	Environmental activism	Mexico	0.03	0.3051
			Spain	0.218	
Environmental activism	→→→	Green consumption	Mexico	4.935	0.6347
			Spain	1.763	
Connection to nature	→→→	Green consumption	Mexico	0.222*	0.4865
			Spain	0.481*	
Environmental social identity	→→→	Green consumption	Mexico	0.152	0.3602
			Spain	-0.320	
Environmental citizenship	→→→	Environmental activism	Mexico	0.975*	0.2649
			Spain	0.818*	

*p value <0.05
Source: own elaboration
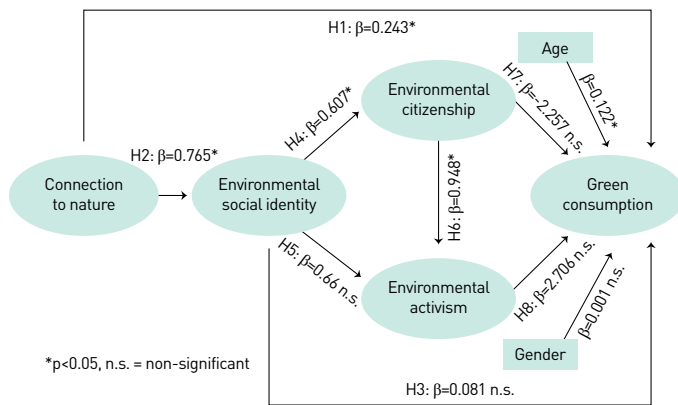
Figure 3. Contrasted global model of green consumption with standardized path coefficients.
Source: own elaboration

Table 5. Standardized factor loadings for pooled data.

		Standardized load	p value
Connection to nature	CN1	0.649	0.000
	CN2	0.686	0.000
	CN3	0.706	0.000
Environmental social identity	ESI1	0.822	0.000
	ESI2	0.934	0.000
	ESI3	0.688	0.000
Environmental citizenship	EC1	0.610	0.000
	EC2	0.621	0.000
	EC3	0.798	0.000
	EC4	0.842	0.000
Environmental activism	EA1	0.782	0.000
	EA2	0.771	0.000
	EA3	0.831	0.000
	EA4	0.793	0.000
	EA5	0.855	0.000
	EA6	0.711	0.000
Green consumption	GC1	0.830	0.000
	GC2	0.815	0.000
	GC3	0.839	0.000
	GC4	0.778	0.000
	GC5	0.822	0.000

Source: own elaboration

5. Discussion

Contrary to our predictions, the findings of this study suggest that green consumption among Mexican and Spanish young adults does not present distinctly different patterns of environmental behavior. Thus, in green consumption analysis, regardless of the country of origin, the path coefficients between-individual comparison were similar. The findings illustrated that not every explanatory variable influenced the green consumption among young consumers. However, for both groups, it was found that green consumption in young

adults is supported by the intrinsic motivation derived from feelings of attachment to nature and keeping their surroundings ecologically healthy. Thus, Hypothesis 1 was confirmed, coinciding with other research (Davis et al., 2009; Dutcher et al., 2007). Also, connection to nature presented an effect on the environmental social identity among young adults, thus supporting Hypothesis 2. This implies that when young adults experience a positive emotional connection to nature, they can assimilate better to the environmental social norms of a group (Fielding & Hornsey, 2016). Therefore, it is crucial to invest in programs and urban spaces that generate a stronger connection to nature that will contribute to urban areas being better adapted to climate change (Ordóñez, 2015). Furthermore, citizens could be more emotionally involved in pro-environmental activities approved by a reference social group.

Regarding the effects of environmental social identity, although research has found that it is a robust predictor of green consumption (Klas, 2017) in this research, H3 could not be confirmed. However, a positive effect of environmental social identity on environmental citizenship was found, thus supporting H4. This means that a consumer who feels identification with a group that assumes environmental responsibilities is more prone to develop environmental citizenship, which implies the development of a shared personal commitment to sustainability (Dobson, 2003). H5 was rejected because environmental social identity had no effect on environmental activism among Spanish and Mexican young adults. This suggests that although there is a psychological connection with an environmental group, it does not influence the decision to participate in collective actions such as protests or petitions in favor of the environment (Dono et al., 2010).

Environmental citizenship affects environmental activism positively in Mexican and Spanish young adult consumers; thus, H6 was supported. The effect of environmental citizenship on environmental activism is frequently reported in the literature (Lubell, 2002; Dono et al., 2010; Fadaee, 2017). It is expected that the commitment to more sustainable behaviors may encourage participation in pro-environmental public acts. Interestingly, neither environmental citizenship nor environmental activism emerged as significant predictors of green consumption in young adults—consequently, Hypotheses 7 and 8 were rejected. According to Thøgersen and Ølander (1995), two aspects are indispensable pre-requisites to green consumer behavior: ability and opportunity. If organizations and governments engage in the development of environmental citizen behaviors, it is likely to persuade an increase in environmental activism and sustainable consumption. Finally, the significant path coefficients for H1, H2, H4, and H6 were comparable between the two groups. The coefficients were quite similar in size, but generally slightly stronger effects were reported for the sample of Spanish young adults,

except that the effect of environmental citizenship on environmental activism was higher in young adults from Mexico.

Although non-significant effects were not expected, the notion that these results are unimportant should be avoided, as they are useful to disprove hypotheses or theories and to justify findings. Furthermore, they are important components on which we can support the basis for future studies (Mehler et al., 2019). One possible reason for the lack of significant effect of environmental activism and environmental citizenship on green consumption may be consistent with what was found by Martinsson and Lundqvist (2010) in their research on ecological citizenship in a large group of Swedish citizens. In one of the groups, they found that despite solidarity with the world and strong green attitudes, the participants exhibited gray environmental practices. Therefore, it may be that even a profound change in attitudes and going "green" does not always result in a positive behavioral effect. Our results challenge the ecological citizenship theory because the majority think "green", but still without adjusting their behavior accordingly.

6. Conclusions

This study revealed categories within green consumption literature, uncovering four constructs to encourage green young adult consumers: environmental citizenship, environmental activism, environmental social identity, and connection to nature. In this cross-cultural study, the primary outcomes related to green consumption were similar among young adults from different countries, suggesting no differential environmental behavior patterns between Mexican and Spanish samples. Thus, when results were pooled, the research findings revealed that young adult consumers who are more attached to nature and who feel motivated to keep their surroundings ecologically healthy are more likely to consume green products. Therefore, our research diminishes the observed gap in the literature regarding the understanding of the connection to nature effect towards green consumption.

However, based on the findings, we call for further research to understand how environmental citizenship and activism can empower people to embrace green consumption. We expect that this framework will bring a different perspective to influence young adult consumer spending on eco-friendly products, with the understanding of buyers and their needs in mind. Also, our findings could motivate firms to operate more sustainably, maximize their sustainability, and examine new business models to offer and encourage green consumption among young adult consumers. Future research could examine how ecological perspectives, attitudes, evaluation of product attributes, product ability and opportunity, and social influences lead to inconsistencies in young adult green consumption. It could also be socio-economic, political, or other characteristics to be considered that can help us understanding the dissonance between attitudes and behaviors.

Our investigation had several limitations. We used a sample of convenience; thus, future research should use a more representative sample population. Another limitation is that we considered green consumption in general; nevertheless, this type of products or services could be divided into more specific types. Therefore, the consumption intention could vary for each type of product. This paper contributes to previous research through three main angles: first, most previous studies on the antecedents of green consumption ignored the need to promote the perceived effectiveness of the consumer, convincing them of the impact of green consumption on the environment; second, if our findings are confirmed by future research, new intervention approaches could be introduced in building a more sustainable society. Current approaches are mainly focused on offering people green choices such as products, organic store shopping, and green devices to be used at home, while forgetting to strengthen the previous connection to nature, environmental social identity, and environmental citizenship and activism; third, our study enhances the green consumption literature by introducing the need to analyze the promoting actions to reconnect people with nature to strengthen the reasons why society would genuinely turn towards sustainability. For instance, associations and other organized groups in society can do more to persuade organizations to hold events on environmental protection and the benefits of green consumption. Furthermore, the development of effective strategies focused on connection to nature and the value of environmental social identity can strengthen the construction of stronger environmental citizenship.

References

Akehurst, G., Afonso, C., & Gonçalves, H. (2012). Re-examining green purchase behaviour and the green consumer profile: new evidences. *Management Decision, 50*(5), 972–988. https://doi.org/10. 1108/00251741211227726

Anđić, D., & Hadela, J. (2021, July). *Adults ́connectedness to nature and environmental identity in the republic of Croatia–adaptation and validation of two scales*. In Proceedings of EDULEARN21 Conference (Vol. 5, p. 10198- 10208).

Asah, S. T., Bengston, D. N., Westphal, L. M., & Gowan, C. H. (2018). Mechanisms of children's exposure to nature: Predicting adulthood environmental citizenship and commitment to nature-based activities. *Environment and Behavior, 50*(7), 807–836. https://doi.org/10.1177/0013916517718021

Ayuso, S., & Navarrete-Báez, F. E. (2018). How does entrepreneurial and international orientation influence SMEs' commitment to sustainable development? Empirical evidence from Spain and Mexico. *Corporate Social Responsibility and Environmental Management, 25*(1), 80–94. https://doi.org/10.1002/csr.1441

Bhattacherjee, A., & Premkumar, G. (2004). Understanding changes in belief and attitude toward information technology usage: A theoretical model and longitudinal test. *MIS quarterly, 28*, 229–254. https://doi.org/10.2307/25148634

Boeve-de Pauw, J., & Van Petegem, P. (2013). A cross-cultural study of environmental values and their effect on the environmental behavior of children. *Environment and Behavior, 45*(5), 551–583. https://doi.org/10.1177/0013916511429819

Brochado, A., Teiga, N., & Oliveira-Brochado, F. (2017). The ecological conscious consumer behaviour: are the activists different?. *International Journal of Consumer Studies, 41*(2), 138-146. https://doi.org/10.1111/ijcs.12321

Brown, T. A. (2015). *Confirmatory Factor Analysis for Applied Research*, 2nd Ed. New York: The Guilford Press.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. London: Routledge.

Carballeira, M., González, J., & Marrero, R. J. (2015). Diferencias transculturales en bienestar subjetivo: México y España. *Anales de Psicología, 31*, 199-220. http://dx.doi.org/10.6018/analesps.31.1.166931

Chapman, D. A. (2018). *Three Investigations into the Dynamics and Implications of Identity-protective Cognition for Public Responses to Environmental Problems*. Doctoral dissertation, University of Massachusetts Libraries. Retrieved from https://pdfs.semanticscholar.org/6f5a/7305c81b9a62bd6111b7712c8a28ab5967a3.pdf

Cheah, W., Manan W., & Zabidi-Hussin, Z. (2010). A structural equation model of the determinants of malnutrition among children in rural Kelantan, Malaysia. *Rural and Remote Health, 10*(1), 1248-1255.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural equation modeling, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Côrtes, P. L., Dias, A. G., Fernandes, M. E. D. S. T., Pamplona, J., & Vieira, M. (2016). Environmental behavior: a comparative study between brazilian and portuguese students. *Ambiente & Sociedade, 19*(3), 113–134. https://doi.org/10.1590/1809-4422ASOC139099V1932016

Davis, J. L., Green, J. D., & Reed, A. (2009). Interdependence with the environment: Commitment, interconnectedness, and environmental behavior. *Journal of environmental psychology, 29*(2), 173–180. https://doi.org/10.1016/j.jenvp.2008.11.001

Dobson, A. (2003). *Citizenship and the environment*, New York, NY, Oxford University Press.

Dobson, A. (2007). Environmental citizenship: towards sustainable development. *Sustainable development, 15*(5), 276–285. https://doi.org/10.1002/sd.344

Dolan, P. (2002). The sustainability of sustainable consumption. *Journal of Macromarketing, 22*(2), 170–181. https://doi.org/10.1177/0276146702238220

Dono, J., Webb, J., & Richardson, B. (2010). The relationship between environmental activism, pro-environmental behavior and social identity. *Journal of environmental psychology, 30*(2), 178–186. https://doi.org/10.1016/j.jenvp.2009.11.006

Dutcher, D. D., Finley, J. C., Luloff, A. E., & Johnson, J. B. (2007). Connectivity with nature as a measure of environmental values. *Environment and behavior, 39*(4), 474–493. https://doi.org/10.1177/0013916506298794

Ellemers, N., Spears, R., & Doosje, B. (2002). Self and social identity. *Annual review of psychology, 53*(1), 161–186. https://doi.org/10.1146/annurev.psych.53.100901.135228

Fadaee, S. (2017). Environmentally friendly food initiatives in Iran: between environmental citizenship and pluralizing the public sphere. *Citizenship Studies, 21*(3), 344–358. https://doi.org/10.1080/13621025.2016.1277979

Fielding, K. S., & Hornsey, M. J. (2016). A social identity analysis of climate change and environmental attitudes and behaviors: Insights and opportunities. *Frontiers in psychology, 7*, 121–127. https://doi.org/10.3389/fpsyg.2016.00121

Fielding, K. S., McDonald, R., & Louis, W. R. (2008). Theory of planned behavior, identity and intentions to engage in environmental activism. *Journal of environmental psychology, 28*(4), 318–326. https://doi.org/10.1016/j.jenvp.2008.03.003

Gallup, I. (2016). *Environment*. Retrieved from http://www.gallup.com/poll/1615/Environment.aspx

Geetha, R. & Laxman, G. (2017). Green Consumption Behavior: A Precursor to Green Production and Green Marketing? Paper presented at the *5th International Conference on Contemporary Issues in Management at ISME*, Bangalore Compendium of Papers. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2915801

Geng, L., Xu, J., Ye, L., Zhou, W., & Zhou, K. (2015). Connections with nature and environmental behaviors. *PloS one, 10*(5), 1–11.

Gleim, M. R., Smith, J. S., Andrews, D., & Cronin Jr, J. J. (2013). Against the green: A multi-method examination of the barriers to green consumption. *Journal of retailing, 89*(1), 44–61. https://doi.org/10.1016/j.jretai.2012.10.001

Goldman, D., Hansmann, R., Činčera, J., Radović, V., Telešienė, A., Balžekienė, A., & Vávra, J. (2020). Education for Environmental Citizenship and Responsible Environmental Behaviour. En Hadjichambis, A. C., Reis, P., Paraskeva-Hadjichambi, D., Činčera, J., Boeve-de Pauw, J., Gericke, N., & Knippels, M. C. (Eds). *Conceptualizing Environmental Citizenship for 21st Century Education*. Switzerland: Springer Nature.

Gregorich, S. E. (2006). Do self-report instruments allow meaningful comparisons across diverse population groups? Testing measurement invariance using the confirmatory factor analysis framework. *Medical care, 44*(11), S78. https://doi.org/10.1097/01.mlr.0000245454.12228.8f

Guckian, M., De Young, R., & Harbo, S. (2017). Beyond green consumerism: uncovering the motivations of green citizenship. *Michigan journal of Sustainability, 5*(1), 73–94. https://doi.org/10.3998/mjs.12333712.0005.105

Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2018). *Advanced issues in partial least squares structural equation modelling*. Thousand Oaks, CA: Sage Publications.

Hamilton, E. M., Guckian, M. L. & De Young, R. (2018). Living well and living green: participant conceptualizations of green citizenship. In Leal Filho, W., Marans, R.W. and Callewaert, J. (Eds.). *Handbook of Sustainability and Social Science Research.* (pp. 315–334). Switzerland: Springer, Cham.

Hodson, D. (2014). Becoming part of the solution: Learning about activism, learning through activism, learning from activism. In J. L. Bencze & S. Alsop (Eds.), *Activist science and technology education* (pp. 67-98). Dordrecht: Springer

Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of consulting and clinical psychology, 65*(4), 599–610. https://doi.org/10.1037/0022-006X.65.4.59

Horn, J. L., McArdle, J. J., & Mason, R. (1983). When is invariance not invariant: A practical scientist's look at the ethereal concept of factor invariance. *Southern Psychologist. 1* (Summer-Fall), 179–188.

Horton, D. (2003). Green distinctions: the performance of identity among environmental activists. *The Sociological Review, 51*, 63–77. https://doi.org/10.1111/j.1467-954X.2004.00451.x

Jagers, S. C., Martinsson, J., & Matti, S. (2014). Ecological citizenship: a driver of pro-environmental behavior?. *Environmental Politics. 23*(3), 434–453. https://doi.org/10.1080/09644016.2013.835202

Jang, Y. J., Lee, J., Puig, A., & Lee, S. M. (2012). Factorial invariance and latent mean differences for the five factor wellness inventory with Korean and American counselors. *Measurement and Evaluation in Counseling and Development, 45*(2), 71–83. https://doi.org/10.1177/0748175611427915

Johnson, B., & Stevens, J. (2000). Elementary teachers' perceptions of school climate and student achievement. Paper presented at the *Annual meeting of the American Educational Research Association*. New Orleans, LA.

Jöreskog, K. G. (1990). New developments in LISREL: Analysis of ordinal variables using polychoric correlations and weighted least squares. *Quality & Quantity, 24*(4), 387–404. https://doi.org/10.1007/BF00152012

Klas, A. (2017). *Pro-environmentalism: environmentalist social identity, environmentalist stereotypes, and green consumerism engagement*. Doctoral dissertation. Deakin University. Retrieved from http://dro.deakin.edu.au/eserv/DU:30102817/klas-pro-environmentalism-2017.pdf.

Kline, R. B. (2015). *Principles and practice of structural equation modelling*. New York, Guilford publications.

Kuhn, J. T., & Holling, H. (2009). Measurement invariance of divergent thinking across gender, age, and school forms. *European Journal of psychological assessment, 25*(1), 1–7. https://doi.org/10.1027/1015-5759.25.1.1

Laroche, M., Tomiuk, M. A., Bergeron, J., & Barbaro-Forleo, G. (2002). Cultural differences in environmental knowledge, attitudes, and behaviors of Canadian consumers. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 19*(3), 267–282. https://doi.org/10.1111/j.1936-4490.2002.tb00272.x

Larson, L. R., Stedman, R. C., Cooper, C. B., & Decker, D. J. (2015). Understanding the multi-dimensional structure of pro-environmental behavior. *Journal of Environmental Psychology. 43*, 112–124. https://doi.org/10.1016/j.jenvp.2015.06.004

Lin, C.H., Song, T.J., Chen, Y.Y., Lee, W.K., & Chiu, Y.C. (2013). Reexamining the validity and reliability of the clinical version of the Iowa gambling task: Evidence from a normal subject group. *Frontiers in Psychology, 4*, 220. https://doi.org/10.3389/fpsyg.2013.00220

Mainieri, T., Barnett, E. G., Valdero, T. R., Unipan, J. B., & Oskamp, S. (1997). Green buying: The influence of environmental concern on consumer behavior. *The Journal of social psychology, 137*(2), 189-204. https://doi.org/10.1080/00224549709595430

Martins Gonçalves, H., & Viegas, A. (2015). Explaining consumer use of renewable energy: determinants and gender and age moderator effects. *Journal of Global Scholars of Marketing Science, 25*(3), 198–215. https://doi.org/doi:10.1080/21639159.2015.1041780

Martinsson, J., & Lundqvist, L. J. (2010). Ecological citizenship: coming out 'clean' without turning 'green'? *Environmental politics, 19*(4), 518-537. https://doi.org/10.1080/09644016.2010.489709

Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of environmental psychology, 24*(4), 503–515. https://doi.org/10.1016/j.jenvp.2004.10.001

Mehler, D. M. A., Edelsbrunner, P. A., & Matić, K. (2019). Appreciating the Significance of Non-significant Findings in Psychology. *Journal of European Psychology Students, 10*(4), 1–7. https://doi.org/10.5334/jeps.e2019a

Moisander, J. (2000). Gender and green consumerism: analyzing a case of domestication of women–the green cleaners of the planet. In *Gender, Marketing, and Consumer Behavior, Proceedings of the 5th Conference*. Urbana, IL, University of Illinois Printing Services (pp. 193–204).

Nisbet, E. K., & Zelenski, J. M. (2013). The NR-6: a new brief measure of nature relatedness. *Frontiers in psychology, 4*, 813. https://doi.org/10.3389/fpsyg.2013.00813

Nguyen, H. V., Nguyen, C. H., & Hoang, T. T. B. (2019). Green consumption: Closing the intention-behavior gap. *Sustainable Development, 27*(1), 118–129. https://doi.org/10.1002/sd.1875

Olivos, P. & Clayton, S. (2017). Self, nature and well-being: Sense of connectedness and environmental identity for quality of life. In Fleury-Bahi, G., Pol, E. and Navarro, O. (eds.). *Handbook of environmental psychology and quality of life research* (pp. 107–126). Switzerland: Springer, Cham.

Ordóñez, C. (2015). Adopting public values and climate change adaptation strategies in urban forest management: A review and analysis of the relevant literature. *Journal of environmental management, 164*, 215-221. https://doi.org/10.1016/j.jenvman.2015.09.004

Paço, A., & Gouveia, R. (2016). Environmental activism and consumers' perceived responsibility. *International Journal of Consumer Studies, 40*(4), 466–474. https://doi.org/10.1111/ijcs.12272

Pagiaslis, A. & Krontalis, A. K. (2014). Green consumption behavior antecedents: Environmental concern, knowledge, and beliefs. *Psychology & Marketing, 31*(5), 335–348. https://doi.org/10.1002/mar.20698

Peattie, K. (2010). Green consumption: behavior and norms. *Annual review of environment and resources, 35*, 195–228. https://doi.org/10.1146/annurev-environ-032609-094328

Pereira, M., & Forster, P. (2015). The relationship between connectedness to nature, environmental values, and pro-environmental behaviours. *Reinvention: An international journal of undergraduate research, 8*(2), 1–22.

Piyapong, J. (2020). Factors Affecting Environmental Activism, Nonactivist Behaviors, and the Private Sphere Green Behaviors of Thai University Students. *Education and Urban Society, 52*(4), 619–648. https://doi.org/10.1177/0013124519877149

Raineri, N., & Paillé, P. (2016). Linking corporate policy and supervisory support with environmental citizenship behaviors: The role of employee environmental beliefs and commitment. *Journal of Business Ethics, 137*(1), 129–148. https://doi.org/10.1007/s10551-015-2548-x

Reis, P. (2020). Environmental citizenship and youth activism. In Hadjichambis, A., Reis, P., Paraskeva-Hadjichambi, D., Činčera, J., Boeve-de Pauw, J., Gericke, N. & Knippels, M-C. (Eds.). *Conceptualizing Environmental Citizenship for 21st Century Education* (pp.139-148). Switzerland: Springer, Cham.

Routio, P. (August 3rd, 2007). *Comparative study*. Retrieved from http://www2.uiah.fi/projekti/metodi/172.htm

Ryan, R. M., & Deci, E. L. (2003). On assimilating identities to the self: A self-determination theory perspective on internalization and integrity within cultures. In Leary, M. R. and Tangneym J. P. (Eds.). *Handbook of self and identity.* (pp. 253-272). New York: Guilford.

Schulte, M., Bamberg, S., Rees, J., & Rollin, P. (2020). Social identity as a key concept for connecting transformative societal change with individual environmental activism. *Journal of Environmental Psychology, 72*, 101525. https://doi.org/10.1016/j.jenvp.2020.101525

Schultz, P. W. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of environmental psychology, 21*(4), 327–339. https://doi.org/10.1006/jevp.2001.0227

Seguin, C., Pelletier, L. G., & Hunsley, J. (1998). Toward a model of environmental activism. *Environment and Behavior, 30*(5), 628–652. https://doi.org/10.1177/001391659803000503

Spielmann, N. (2020). Green is the new white: How virtue motivates green product purchase. *Journal of Business Ethics*, April, 1-18. https://doi.org/10.1007/s10551-020-04493-6

Seyfang, G. (2006). Ecological citizenship and sustainable consumption: Examining local organic food networks. *Journal of rural studies, 22*(4), 383–395. https://doi.org/10.1016/j.jrurstud.2006.01.003

Song, Z., Daryanto, A., & Soopramanien, D. (2019). Place attachment, trust and mobility: Three-way interaction effect on urban residents' environmental citizenship behaviour. *Journal of Business Research, 105*, 168–177. https://doi.org/10.1016/j.jbusres.2019.08.001

Steenkamp, J. B. E., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of consumer research, 25*(1), 78–90. http://dx.doi.org/10.1086/209528

Stern, P. C. (2000). New environmental theories: toward a coherent theory of environmentally significant behavior. *Journal of social issues, 56*(3), 407–424. https://doi.org/10.1111/0022-4537.00175

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human ecology review, 6*(2), 81–97.

Stern, P. C., Kalof, L., Dietz, T., & Guagnano, G. A. (1995). Values, beliefs, and proenvironmental action: Attitude formation toward emergent attitude objects. *Journal of applied social psychology, 25*(18), 1611–1636. https://doi.org/10.1111/j.1559-1816.1995.tb02636.x

Straughan, R. D., & Roberts, J. A. (1999). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of consumer marketing, 16*(6), 558–575.

Sun, Y., Liu, N., & Zhao, M. (2019). Factors and mechanisms affecting green consumption in China: A multilevel analysis. *Journal of cleaner production, 209*, 481–493. https://doi.org/10.1016/j.jclepro.2018.10.241

Tajfel, H. E. (1978). Social categorization, social identity and social comparison. In H. Tajfel (Ed.). *Differentiation between social groups: Studies in the social psychology of intergroup relations.* (pp. 61–76). London: Academic Press.

Thøgersen, J., & Ølander, C. F. (1995). Perceptions of waste and recycling. A qualitative analysis. Paper presented at *the 20th Annual Colloquium of IAREP, the International Association for Research in Economic Psychology August 1995 Frontiers in Economic Psychology.* Norwegian School of Economics and Business Administration. Bergen.

Ueltschy, L. C. (2010). How far does the apple fall from the tree? Advertising preferences in Spain and Mexico. *Marketing management journal, 20*(1), 19–31.

Venhoeven, L. A., Bolderdijk, J. W., & Steg, L. (2016). Why acting environmentally-friendly feels good: Exploring the role of self-image. *Frontiers in Psychology, 7*, 1846. https://doi.org/10.3389/fpsyg.2016.01846

Wilson, E. O. (1984). *Biophilia*. Cambridge, Mass: Harvard University Press.

Whitburn, J., Linklater, W., & Abrahamse, W. (2020). Meta-analysis of human connection to nature and proenvironmental behavior. *Conservation Biology, 34*(1), 180–193. https://doi.org/10.1111/cobi.13381

Wu, H. & Leung, O. S. (2017). Can Likert Scales be Treated as Interval Scales?—A Simulation Study. *Journal of Social Service Research, 43*(4), 527-532. http://dx.doi.org/10.1080/01488376.2017.1329775

Yang, X., & Weber, A. (2019). Who can improve the environment—Me or the powerful others? An integrative approach to locus of control and pro-environmental behavior in China. *Resources, Conservation and Recycling, 146*, 55–67. https://doi.org/10.1016/j.resconrec.2019.03.005

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: green consumer behavior when purchasing products. *Sustainable development, 18*(1), 20–31. https://doi.org/10.1002/sd.394

Appendix

Table A1. Scales

Connection to nature	Environmental social identity
Guckian, De Young, & Harbo, 2017	*Klas, 2017*
CN1. I feel strongly about keeping the place I live ecologically healthy	ESI1. I am a person who is glad to belong with environmentalists
CN2. I am curious to learn new ways to conserve resources	ESI2. I am a person who sees myself as belonging with environmentalists
CN3. I feel a strong attachment to nature	ESI3. I am a person who identifies with environmentalists
CN4. The more connected people are to nature, the better off society will be	ESI4.I am a person who feels strong ties with environmentalists
	ESI5. I am a person who considers environmentalists important
Environmental citizenship	**Environmental activism**
Larson, Stedman, Cooper, & Decker, 2015	*Klas, 2017*
EC1.Voted to support a policy/regulation that affects the local environment	EA1.I participate in protests against current environmental conditions
EC2.Signed a petition about an environmental issue	EA2.I circulate petitions demanding an improvement of government policies regarding the environment
EC3.Donated money to support local environmental protection	EA3.I write letters to firms that manufacture harmful products
EC4.Wrote a letter in response to an environmental issue	EA4.I participate in events organized by environmental groups
	EA5.I give financial support to an environmental group
	EA6.I vote for a government proposing environmentally conscious policies
Green consumption	
Côrtes, Dias, Fernandes, Pamplona & Vieira, 2016	
GC1.When I buy, I prioritize products that are more easily recycled	
GC2. I purchase products that do not waste resources in their packaging	
GC3. Choosing a product, I prioritize the environmental aspects rather than the price/quality	
GC4. Between two similar products, I prefer the one produced with recycled raw materials	
GC5. A certification indicating that a product was made following environmental standards helps my purchase decision	

Sources: Larson, Stedman, Cooper, & Decker, 2015; Côrtes, Dias, Fernandes, Pamplona & Vieira, 2016; Guckian, De Young, & Harbo, 2017; Klas, 2017.