

SEGMENTATION OF YOUNG UNIVERSITY STUDENTS ACCORDING TO THEIR ENVIRONMENTAL CONSCIOUSNESS. A SPAIN AND MEXICO CROSS-CULTURAL ANALYSIS

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Abstract:

The deterioration of the environment is a scientific fact that has been playing an increasingly important role in political and corporate agendas since the 1970s. We need to move to an economic model that encourage responsible consumption and the purchase of green products, growing the green consumer segment. If these strategies are to be effective, we need to understand more about consumer behaviour. Among the whole population, young university students are important because they will play the leading roles in politics and business. Through a sample of 420 Mexican students and 404 Spanish students, a survey has been conducted to describe their level of environmental consciousness. Three different segments have been identified in each country. Important similarities between the two countries can be identified, but also some differences. The results of this study can serve as a guide to design effective marketing strategies for companies and governmental organizations.

Keywords: *green consumer; green marketing; cross-cultural research; marketing segmentation; young consumers*

JEL CLASSIFICATION: Q50; Q56.

SEGMENTACIÓN DE LOS JÓVENES UNIVERSITARIOS SEGÚN SU CONCIENCIA MEDIOAMBIENTAL. UN ANÁLISIS CROSS-CULTURAL DE ESPAÑA Y MÉXICO

Resumen:

El deterioro del medio ambiente es un hecho científico que desde la década de los 70 ocupa un papel cada vez más importante en las agendas políticas y empresariales. Es necesario evolucionar hacia un modelo económico que fomente el consumo responsable y la compra de productos verdes, haciendo crecer el segmento de consumidores verdes. Para que estas estrategias sean efectivas, debemos comprender mejor el comportamiento de los consumidores. Entre toda la población, los jóvenes universitarios son importantes porque en el futuro desempeñarán los papeles principales en la política y los negocios. A través de una muestra de 420 estudiantes mexicanos y 404 españoles, se ha realizado una encuesta para describir el nivel de conciencia medioambiental de los jóvenes universitarios. Se han identificado tres segmentos diferentes en cada país. Existen importantes similitudes entre los dos países, pero también algunas diferencias. Los resultados de este estudio pueden servir de guía para diseñar estrategias de marketing eficaces para las empresas y las organizaciones gubernamentales.

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Palabras clave: *consumidor ecológico; marketing verde; investigación cros-cultural; segmentación de mercados; jóvenes consumidores*

1. Introduction

The seriousness of the environmental problem we are facing means that we need to move to an economic model that provides an incentive for environmentally friendly behaviour and deters environmentally irresponsible behaviour. The paradigm of the relationship between nature and the human race's production and consumption activities must be changed.

The term “green economy” was institutionalised in the United Nations Conference on Sustainable Development, also known as Rio+20, in 2012. The UN defines the green economy “as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive” (UNEP, 2011). The green economy concept is closely linked to the concept of the circular economy used by the European Union (European Commission, 2015) as an alternative to the linear economy and in the fight against the generation of waste and the inefficient use of resources.

The green and circular economy is a path towards achieving sustainable development. A transition to this new economic model is necessary to meet Goal 12 of the Sustainable Development Goals established by the UN in 2015 to end poverty, reduce the environmental damage to the planet and guarantee the prosperity of all nations. Meeting this goal implies changing the way that companies and consumers think.

Companies and governmental organisations must design marketing strategies that encourage responsible consumption and the purchase of green products, growing the green consumer segment. If these strategies are to be effective, we need to understand more about consumer behaviour. While we have seen a growing number of academic studies on the environmental consciousness of consumers in recent decades (Chamorro et al, 2009), more are still required. Of particular importance are studies looking at young university students because they are the people who in the future will play the leading roles in politics and business. Tan et al. (2019) report that young consumers tend to be receptive to new ideas linked to environmental care and protection, compared to older people. Herman et al (2021) argue that the younger generations are agents of change.

Various studies have focussed on identifying the background variables of the environmental behaviour of young people making up Generation Z, who are currently young adults (19-25 years old) or undergraduate students. We can cite research performed in recent years such as that by Heo and Muralidharan (2017) and Naderi and Van Steenburgen (2018) in the USA, Fatah and Naved (2018), Verma and Chandra (2018), Kumar et al. (2019) and Kautish and Sharma (2019) in India, Nguyen et al. (2018) in Vietnam, Lago et al. (2020) in Brazil, Naz et al. (2020) in Hungary, Al-Swidi and Saleh (2021) in Qatar, Herman et al. (2021) in Indonesia and Sobuj et al. (2021) in Bangladesh, Correia et al. (2022) in Portugal or Margaça et al. (2022) in Spain.

Researchers have contradictory findings and differences in terms of green attitude, intention and behaviour among young consumers. Based on these contrasting findings, we agree with Coşkun & Yetkin Özbük (2019) that there is still a need to shed light on young consumers' green behaviour. Another rationale for this study is that there have been very few cross-cultural studies analysing the same variables in young people from different countries, such as those by Blose et al. (2020) and Su et al. (2019), both for American and Chinese young consumers, and that by Dinh et al. (2021) in Japan and Vietnam.

There are far fewer studies that segment consumers based on their environmental attitudes, intentions, and behaviour. These studies are very important if we are to identify the target audience for green products and correctly design the communication aimed at them.

Most existing studies have segmented the population in general, rather than focussing on a specific generation of consumers. Initially, one might think that people from the same generation share the same important cultural, political, and economic experiences, and they therefore hold similar views and values. However, environmental behaviours or intentions do not depend on demographic or psychographic characteristics, so it is logical to assume that not all of the members of Generation Z will have the same behaviour or attitudes towards the environment.

From the few examples where young people have been segmented according to their environmental consciousness we can cite Yilmazsoy et al. (2015) and Coşkun and Yetkin Özbük (2019). The first study was cross-cultural involving Chinese, Turkish and German consumers considering their environmental behaviour. They identified four different segments in each country depending on the intensity of their environmental behaviour, with some differences depending on the country. In contrast, Coşkun and Yetkin Özbük (2019) segmented Turkish university students according to their purchase intentions, not their actual behaviour. They identified three clusters, namely, “non-greens”, “reluctant greens” and “true greens”, all of whom differed in terms of environmental attitudes and purchase intentions.

Given this background, the purpose of this paper is to analyse the environmental consciousness of young university students in two countries (Spain and Mexico) using several green attitude, intention, and behaviour variables. Specifically, there are three research objectives (ROs):

RO1. Identify different market segments among young consumers, considering not only the intensity, but also the specific type of environmental behaviour. Considering the type of green consumption practices proposed by Zhang et al. (2007), actions were analysed in relation to purchasing, using habitually (daily behaviour), and recycling behaviours.

RO2. Identify the socio-demographic profile of the young people most proactive in relation to environmental behaviour.

RO3. Identify the similarities and differences between young consumers in Spain and Mexico.

Through a sample of 420 Mexican students and 404 Spanish students, a survey has been conducted to describe their level of environmental consciousness. Three segments of individuals have been identified in each country. Each one with clearly different levels of environmental consciousness: Not committed, Eco-citizens and Eco-consumers. These segments are differentiated not only by the intensity of their beliefs and behaviours, but also by the type of behaviour they have or are willing to have (consumer behaviour vs. behaviour as citizens).

The article is structured as follows. First, a background about variables of environmental behaviour is developed. This is followed by a description of the objectives and methodology. Next, the results are described and, finally, the discussion and conclusions of the study are presented.

2. The background variables of environmental behaviour

The following is an explanation of the background variables of environmental behaviour selected for this study to segment young consumers. Attitude has been measured using three variables: emotional engagement; perceived global or collective gain; and perceived personal gain. The subjective norm has been measured through the social pressure from different social groups. For perceived control, perceived consumer effectiveness has been used.

2.1. Emotional engagement

Emotional engagement reflects the feelings of an individual towards the topic being analysed. One of the first studies that used this in relation to environmental issues is that by Maloney et al. (1975), who defined it as the “degree of emotionality about environmental issues”.

A growing body of research has documented how emotions exert a causal and powerful influence on us, especially on effortful and altruistic ones, such as pro-environmental behaviours (Haj-Salem and Al-Hawari, 2021). The results of studies such as those by Antil (1984), De Pelsmacker & Janssens (2007) and Izaguirre-Olaizola et al. (2013) have shown that emotional engagement has a positive influence on environmental behaviour.

2.2. Perception of personal and collective gain

The perception of personal gain can be defined as the individual’s subjective assessment of the advantages and disadvantages for them of their responsible behaviour. It can be asked about in a positive way, indicating the gains. However, in most studies this variable has been defined using items written in a negative way, reflecting feelings of detriment or sacrifice.

In the review of the literature, it can be observed that those individuals who show a high perception of personal gain tend to behave in a socially responsible way to a greater extent than those who show a low perception (Antil 1984; Ellen 1994, and De Pelsmacker and Janssens 2007). Likewise, this variable can also influence intention, as was found in the study by Lee et al. (2015), who showed that the perception of personal gain influences the intention to purchase fair trade products.

In studies about young consumers, the environmental attitude significantly influences their green behaviour (Kaiser et al., 2007, Heo and Muralidharan, 2017, Nguyen et al., 2018) or their likelihood of purchasing green products (Varah et al., 2021), although there are also studies where the direct effect of environmental attitudes is insignificant (Taufique and Islam, 2021).

2.3. *Perceived Consumer Effectiveness (PCE)*

This variable measures the perceived control of an individual. PCE is defined as “a domain-specific belief that the efforts of a consumer can make a difference in the solution” (Ellen et al., 1991). According to Cleveland et al. (2012), PCE can be defined as an internal locus of control held by a consumer that one’s own actions can make a difference in protecting the environment. Different from environmental concern or attitude, which represents an evaluation of environmental problems, PCE has been defined as the inner evaluation process that an individual could contribute to the environmental issue (Song et al., 2020).

Findings from the early environmental literature suggest that PCE is a strong predictor of responsible behaviour (Ellen, 1994; Roberts, 1996; Straughan & Roberts, 1999; Akehurst et al., 2012; Izaguirre-Olaizola et al., 2013; Taljaard et al., 2018). Other papers have also found that this variable has a positive and significant impact when, instead of studying the real behaviour of the individual, their intention to carry out certain actions is studied. This is the case for the intention to book an environmentally friendly hotel (Han and Yon, 2015), consume organically (Kabadayi et al., 2015) and purchase fair trade products (Lee et al., 2015).

If we analyse the studies focussing on young consumers, we find contradictory results. The direct or indirect influence of PCE has been found in the studies by Song et al. (2020) and Taufique and Islam (2021). According to Suhartanto et al. (2021) PCE does influence behaviour but is not the most important variable. However, Heo & Muralidharan (2017) and Naz et al. (2020) could not confirm that relationship between PCE and environmental behaviour. According to Taufique and Islam (2021) one possible reason for such differences in findings could be due to the fact that the influence of PCE on behaviour may vary across specific types of green behaviour such as energy-saving behaviour or recycling behaviour.

2.4. *Social norms*

Social or subjective norm denotes a form of social pressure on individual behaviour, mostly based on the need for approval. Social pressure may emerge from multiple sources such as family, friends, individuals and referral groups. Regarding the influence of social norms on green intention or behaviour, past studies have drawn mixed findings. In relation to young people, Sobuj et al. (2021) found a high influence on eco-friendly apparel purchase patterns among young consumers in Bangladesh. Similarly, Varah et al. (2021) confirm that an increase in the level of the subjective norm increases the likelihood of purchasing green products. Taufique and Islam (2021) suggest that subjective norms have a direct positive influence on green consumer behaviour. In Portugal, Correia et al. (2022) find that the students’ subjective norm and perceived behavioral control have a positive impact on their pro-environmental intention. However, according to Nguyen et al. (2018), this variable does not significantly affect the purchase of energy efficient appliances.

2.5. *Demographic characteristics*

Three variables have been selected for this study that will be used to describe the profile of the individuals in each consumer segment: gender, income level and level of environmental knowledge. In relation to gender, some studies have linked social and environmentally responsible behaviour with women (Straughan & Roberts, 1999; Singh, 2009; Durif et al., 2011; Saleem et al, 2018). However, there are also studies that have not found a gender-related influence on this behaviour (Akehurst et al., 2012). For young consumers, Suhartanto et al. (2021) show that, in general, gender did not moderate the formation of green repurchase intentions. Similarly, Naz et al. (2020) also failed to find a gender-related influence on green buying behaviour. However, in a study segmenting young consumers, Jaiswal et al. (2021) did find significant gender-based differences between the three consumer segments they identified.

With regard to income level, some studies associate environmental behaviour with a high income level (Ritter et al., 2015; Jaiswal et al., 2021). However, other studies show that people with a lower income behave in a more socially responsible manner (Straughan and Roberts 1999 and Singh, 2009). There are studies that find no significant differences in the relationship between this variable and socially responsible behaviour (Durif et al., 2011; Akehurst et al., 2012; Zhao et al., 2014; Saleem et al, 2018).

Finally, environmental knowledge is the ability of a person to understand issues related to the environment and sustainability. Many studies have examined the association between environmental knowledge and environmental attitudes and behaviours and there is no consensus among researchers that one's environmental knowledge leads to environmental behaviour. This range of outcomes could be the result of different methods for measuring knowledge.

Studies on young consumers mostly demonstrate a direct positive effect on the purchase of green products (Nguyen et al., 2018; Naz et al., 2020; Sobuj et al., 2021) and on the purchase attitude and intention (Fatah and Naved, 2018; Su et al., 2019; Herman et al., 2021). In the segmentation performed by Coşkun & Yetkin Özbük (2019), the consumers belonging to the three segments were identified and differentiated on the basis of their level of environmental knowledge.

3. Objective, design and methodology

The general objective is to describe the level of environmental consciousness among young university students through the identification of possible segments with different attitudes, beliefs and behaviours in relation to the issue. A secondary objective specified for this study is to analyse the possible influence of cultural differences in the formation of these segments and their behaviours. To achieve this, two samples of students were surveyed.

The first sample consisted of students from the Economics and Business Faculty at the Universidad Autónoma de Yucatán, in Mexico. The fieldwork was carried out through an online questionnaire that students had to complete in the university lecture room. A total of 420 valid questionnaires were obtained. The sample of Mexican students was formed by a slightly higher percentage of men than women (54% vs. 46%). The second sample was formed by students at the Universidad de Extremadura, in Spain. The fieldwork was carried out through an online questionnaire that the students had to complete in the university lecture room. A total of 404 valid questionnaires were obtained. The sample of Spanish students was formed by a higher percentage of men than women (64% vs. 36%).

The questionnaire included one block about the measurement of the behaviour predicting variables, another to discover their intentions and real behaviour and a final one to discover their socio-demographic profile. The perception of the collective gains was measured through eight items that refer to the reasons why it is important to protect the natural environment. The perception of personal gain was measured in terms of sacrifice, through five items, adapted from a scale used by Ellen (1994). Eight items were used to measure emotional engagement (based on the scale created by Maloney et al., 1975) and another four were used to measure perceived consumer effectiveness (one used by Roberts, 1996, and the rest proposed by Izaguirre-Olaizola et al., 2013). The social norms were also measured using four items created for this exact purpose and for this study. To measure the intention and behaviour variables, the most common environmental actions in the home and in the buying process were identified and then ten and eight items were designed respectively. The questionnaire also included a self-assessment question to measure the level of individual knowledge about environmental issues. The student taking the survey had to indicate their belief about whether their knowledge level is greater than, similar to or less than that of most people.

4. Results

Initially, the average level of the items measuring beliefs and attitudes was examined (Table 1). In general, both samples of students gave similar values. A very high level can be seen in the perception of collective gain (above 6 on a scale up to 7 points). In contrast, the perception of personal gain is low in both samples, with figures close to the average value (4) for the measurement scale. The same is true for social norms. Overall, the students have a medium-high level of emotional engagement and perceived consumer effectiveness.

The results show that in both samples, as one would expect, the intention to perform certain environmentally friendly behaviours generally scores higher than the actual behaviour (Table 2). Although the values for the two samples are similar, it should be noted that the sample of Mexican students assigned slightly higher scores than the Spanish sample for both the intention items and the real behaviour items.

Table 1. Valuation of the beliefs and attitudes towards the environment

		Spain		Mexico	
		Mean (*)	Standard deviation	Mean (*)	Standard deviation
Perception of collective gain	Protecting the environment will result in a better world for me and my children.	6.39	1.016	6.25	1.407
	Protecting the environment is good for my health	6.43	1.051	6.35	1.298
	Protecting the environment benefits everyone	6.47	0.987	6.46	1.179
	Protecting the environment helps people to have a better quality of life	6.27	1.038	6.32	1.180
	Protecting the environment is an obligation designed to help future generations	6.18	1.209	6.18	1.345
	We need to protect the environment to conserve species and their habitats	6.44	0.937	6.39	1.198
	We need to protect the environment so that we can enjoy the beauty of nature	6.18	1.110	6.24	1.292
	We need to protect the environment so that we don't run out of the natural resources we need for human life: water, air, etc.	6.36	1.058	6.35	1.233
Perception of personal gain	Behaving in an environmentally friendly manner means giving up certain creature comforts.	4.57	1.872	4.85	1.982
	Consuming environmentally friendly products means paying higher prices.	4.87	1.675	4.59	1.865
	Consuming in an environmentally friendly manner means dedicating more time to doing the shopping.	4.28	1.768	4.27	1.959
	Separating out the rubbish for recycling is unpleasant and requires space and time.	3.39	1.936	3.47	2.079
	Generally, behaving in an environmentally friendly manner requires extra effort.	4.32	1.868	4.40	2.118
Emotional engagement	It frightens me to think that most of the food I eat is contaminated with pesticides.	4.79	1.707	5.41	1.557
	It makes me angry to think that the government is not doing more to control the pollution of the environment.	5.19	1.600	5.55	1.507
	I become indignant when I think about the damage caused by human pollution to plant and animal life.	5.52	1.361	5.76	1.346
	Thinking about the pollution caused by industry makes me feel frustrated and angry.	5.34	1.460	5.72	1.347
	I am worried about the impact of pollution on my health and that of my family.	5.98	1.157	6.10	1.277
	It bothers me when people consume products that are not environmentally friendly.	4.36	1.530	5.27	1.456
	I am really worried about the pollution in cities.	5.53	1.278	5.90	1.219
	I suffer every time a humanitarian disaster happens in the world even though it does not directly affect me.	5.34	1.436	5.42	1.409
Perceived Consumer Effectiveness	The politicians and governments have the greatest responsibility for resolving environmental problems.	4.37	1.653	3.30	1.764
	My individual actions as a citizen can be important in promoting sustainable development and protecting the environment.	5.79	1.270	6.06	1.320
	As individuals, our purchasing and consumption decisions can encourage companies to become more environmentally responsible.	5.69	1.374	6.01	1.309
	When organised, I think that the public can influence public policies on the environment.	5.70	1.293	5.99	1.307
Social norms	The people around me think that it is important to spend time on environmental actions.	4.41	1.527	4.60	1.468
	The people around me approve of people being very concerned about the environment	4.68	1.469	4.82	1.435
	The people around me think that those who are concerned about the environment are responsible and educated.	4.58	1.566	4.84	1.502
	The people around me would approve of me making the effort to find out more about environmental issues.	4.34	1.465	4.95	1.510

(*) 7-Point Likert Scale

Table 2. Valuation of environmentally friendly intention and behaviour

	Spain		Mexico	
	Mean (*)	Standard deviation	Mean (*)	Standard deviation
I1. I would be willing to separate out my household waste if the recycling collection conditions were right.	6.05	1.258	6.10	1.248
I2. I would be willing to use public transport more frequently if the service was better.	5.72	1.478	5.92	1.424
I3. I am willing to save water and use it more responsibly.	6.03	1.124	6.25	1.167
I4. I am willing to use lights and electrical devices more efficiently in my home to save energy.	6.02	1.157	6.13	1.223
I5. I would be willing to buy organic food if it was more commonly found where I shop.	5.33	1.528	6.03	1.279
I6. I would buy green products even if the prices were slightly higher than normal.	4.47	1.573	5.29	1.494
I7. I would refuse to buy the products of a company if I knew that it had a poor environmental record.	5.18	1.548	5.70	1.465
I8. I would be willing to buy a product that donates part of the price to an environmental cause, even if I didn't know the brand or it was a little more expensive.	4.96	1.430	5.49	1.519
I9. I would be willing to pay an environmental fee to visit a protected natural area.	4.63	1.679	5.26	1.669
I10. If I had the information, I would stop buying brands from companies that do not behave appropriately.	5.24	1.528	5.73	1.464
B1 I separate out my household waste so that I can then place it in the right container for recycling.	4.86	1.964	4.51	1.874
B2. I have reduced the use of water in my house, for example when I am having a shower, cleaning my teeth, etc.	5.34	1.475	5.44	1.471
B3. I am saving energy in my house by trying, for example, not to turn on lights or electrical devices when they are unnecessary and limiting the use of air conditioning.	5.66	1.497	5.75	1.334
B4. I buy products that are branded as environmentally friendly: organic food, phosphate-free detergents, etc.	3.43	1.683	4.17	1.652
B5. I try to avoid buying over-packaged products to reduce the rubbish I generate.	3.50	1.719	4.40	1.688
B6. I try not to purchase products from companies that harm the environment, that have a bad reputation.	4.13	1.803	4.65	1.609
B7. I normally use paper responsibly, using it efficiently.	5.11	1.633	5.33	1.594
B8. When I have to travel short distances I use public transport, cycle or walk, to cause less pollution.	5.31	1.791	5.47	1.748

(*) 7-Point Likert Scale

However, one can also see that the standard deviations for both samples in each of the items measured are significantly high, which shows that there are clear differences of opinion between the individuals in each

of the samples. Therefore, the next step was to complete a segmentation analysis to identify the groups of individuals with different beliefs, intentions, and behaviours. For this, firstly, a principal component factor analysis was carried out on the items that measure each of the variables included in the study.

For the Spanish sample, the scale to measure the perception of collective gain has a Cronbach's Alpha of 0.889 and after the factorial analysis it has been reduced to a single factor that explains 57.241% of the variance. The KMO value is 0.889. In the Mexican sample, Cronbach's Alpha is 0.831 and after the factorial analysis it has been reduced to a single factor that explains 79.12% of the variance. The KMO value is 0.941.

For the Spanish sample, the scale to measure personal gain obtained a Cronbach's Alpha of 0.790 and it has been reduced to a single factor that explains 54.54% of the variance, with a KMO value of 0.789. For the Mexican sample, this same variable obtained a Cronbach's Alpha of 0.961 and it has been reduced to a single factor that explains 60.01% of the variance, with a KMO value of 0.816.

For the Spanish sample, the scale to measure emotional engagement obtained a Cronbach's Alpha of 0.871 and it has been reduced to a single factor that explains 54.08% of the variance, with a KMO value of 0.894. In the case of the Mexican sample, this scale obtained a Cronbach's Alpha of 0.896 and it has been reduced to a single factor that explains 59% of the variance, with a KMO value of 0.899.

For the sample of young Spaniards, the scale to measure perceived consumer effectiveness was initially formed by 4 items, but the confidence level was very low so we eliminated one of the items. The final scale obtained an acceptable Cronbach's Alpha of 0.794 and after the factorial analysis it was reduced to a single factor that explains 70.86% of the variance. The KMO value is 0.702. For the sample of young Mexicans, the same approach was taken, removing the same item and obtaining a Cronbach's Alpha of 0.880 and after the factorial analysis it was reduced to a single factor that explains 80.64% of the variance, with a KMO value of 0.739.

For the sample of young Spaniards, the scale to measure social norms obtained a Cronbach's Alpha of 0.869 and it has been reduced to a single factor that explains 71.91% of the variance, with a KMO value of 0.817. For the sample of young Mexicans, this scale obtained a Cronbach's Alpha of 0.880 and it has been reduced to a single factor that explains 73.60% of the variance. The KMO value is 0.827.

For the Spanish sample, the scale to measure environmental intention obtained a Cronbach's Alpha of 0.857 and in the factorial analysis it has been reduced to two factors that explain 59.88% of the variance, with a KMO value of 0.833. In the case of the Mexican sample, this obtained a Cronbach's Alpha of 0.915 and in the factorial analysis it has been reduced to two factors that explain 70.15% of the variance, with a KMO value of 0.923. The first factor fundamentally includes those items that refer to purchase behaviour; while the second factor groups together the actions that are performed in the home or simply as members of the public committed to the environment. There is a small difference between the two samples in relation to the composition of the factors since, as can be seen from Table 3, the item "I would be willing to buy organic food if it was more commonly found where I shop" belongs to factor 1 for the Spanish sample but to factor 2 for the Mexican sample.

Table 3. Factorial analysis for the intention variable

Items	Spain		Mexico	
	Factor 1: consumer	Factor 2: citizen	Factor 1: consumer	Factor 2: citizen
I.1	0.159	0.798	0.256	0.817
I.2	0.165	0.700	0.190	0.753
I.3	0.220	0.860	0.271	0.848
I.4	0.246	0.780	0.314	0.805
I.5	0.604	0.320	0.552	0.647
I.6	0.765	0.103	0.796	0.244
I.7	0.779	0.158	0.706	0.385
I.8	0.754	0.250	0.815	0.257
I.9	0.655	0.129	0.834	0.153
I.10	0.729	0.222	0.690	0.388

Lastly, in the case of young Spaniards and for the environmentally friendly behaviour scale, a Cronbach's Alpha of 0.798 was obtained and in the factorial analysis it has been reduced to two factors that explain in total 59.05% of the variance, with a KMO value of 0.803. In the case of the Mexican sample, this scale obtained a Cronbach's Alpha of 0.840 and in the factorial analysis it has been reduced to two factors that explain in total 62.91% of the variance, with a KMO value of 0.849. For both samples, the first factor fundamentally includes those items that refer to purchase behaviour; while the second factor groups together the actions that are performed in the home or simply as members of the public committed to the environment (Table 4). In this case there is again a slight difference between the two samples in relation to the composition of the factors since the item "I separate out my household waste so that I can then place it in the right container for recycling" belongs to factor 2 for the Spanish sample and to factor 1 for the Mexican sample.

Table 4. Factorial analysis for the behaviour variable

Items	Spain		Mexico	
	Factor 1: consumer	Factor 2: citizen	Factor 1: consumer	Factor 2: citizen
B.1	0.350	0.492	0.596	0.258
B.2	0.093	0.797	0.188	0.806
B.3	0.014	0.786	0.123	0.808
B.4	0.864	0.091	0.859	0.107
B.5	0.863	0.170	0.843	0.192
B.6	0.793	0.289	0.746	0.332
B.7	0.340	0.677	0.407	0.676
B.8	0.176	0.501	0.213	0.653

The next step was to perform a cluster analysis for each of the samples with the nine resulting factors. A non-hierarchical classification method was used (k-means clustering), using the Euclidean distance squared as a measurement of distance. The number of clusters was determined by analysing the dendrograms and calculating agglomeration coefficients. This analysis revealed a three-cluster solution (k=3) for both samples.

The three segments identified in both samples are shown in Table 5. The ANOVA test for differences between means shows that the differences between the three segments are statistically significant at 99% for all the variables, except for the perception of personal gain where the differences are not significant for the Spanish sample and are only significant at 90% for the Mexican sample.

Table 5. Segmentation of young consumers according to their environmental consciousness

	Spain			Mexico		
	Not committed (22.28%)	Eco-citizens (26.24%)	Eco-consumers (51.49%)	Not committed (14.5%)	Eco-citizens (41.7%)	Eco-consumers (43.8%)
Perception collective gain	-1.04178	0.03903	0.43088	-1.69569	0.19811	0.37374
Perception personal gain	0.13773	0.04917	-0.08465	-0.12420	-0.09668	0.13313
Emotional engagement	-0.90264	-0.47684	0.63357	-1.43739	-0.11877	0.58949
Perceived consumer effectiveness	-0.84261	-0.22469	0.47910	-1.74686	0.15499	0.43171
Social norms	-0.63834	-0.33683	0.44786	-0.65030	-0.23352	0.43769
Intentions as consumer	-0.32645	-0.98022	0.64079	-0.58737	-0.52325	0.69239
Intentions as citizen	-1.31323	0.47699	0.32514	-1.69403	0.37980	0.20038
Behaviour as consumer	-0.06354	-0.94424	0.50869	0.05415	-0.65812	0.60798
Behaviour as citizen	-1.01608	0.25934	0.30749	-1.27930	0.16451	0.26765

For the Spanish sample, the smallest segment of young university students, accounting for 22.28% of the sample, can be categorised as “individuals not committed to the environment”, since they obtain very low levels in all the variables. For the Mexican sample, this segment accounts for 14.5% of the total sample.

The second segment accounts for 26.24% of the sample of young Spaniards and can be categorised as “eco-citizens”. This segment obtains positive values for the factors that refer to environmentally friendly behaviour and intentions in relation to their actions as a citizen. However, they obtain negative values for the other two factors that refer to purchasing. For young Mexicans, this segment is similar but accounts for 41.7% of the sample.

Finally, the third segment is the largest in both samples, since it represents 51.49% of those surveyed in the case of young Spaniards and 43.8% of the Mexican sample. This group can be categorised as “eco-consumers”, since it obtains high levels in all the variables determining environmental consciousness. In addition, they are different to eco-citizens because these individuals have a higher level of emotional engagement with the environment and perceive a commitment to the environment as a social norm established by the people around them.

To analyse the socio-economic profile of the individuals in each segment, the chi-square value has been calculated for the gender, income level and knowledge level variables. For the Spanish sample, statistically significant differences have been obtained for the three cases: gender (chi-square asymptotic significance <1%), income level (chi-square asymptotic significance <1%) and knowledge level (chi-square asymptotic significance <10%). For the Mexican sample, statistically significant differences have been obtained for gender (chi-square asymptotic significance <10%) and knowledge level (chi-square asymptotic significance <1%), but not for income level.

In relation to gender, for the Spanish sample, the eco-citizens segment is formed by a slightly higher percentage of men than women (28% compared to 23%). Women have a greater relative weight in the eco-consumers segment: 63.2% of women in the sample form part of this segment, compared to only 45% of men. Finally, in the not committed segment, the percentage of men is higher than that of women (27% compared to around 14%). For young Mexicans, the distribution of segments by gender is different. The eco-citizens segment has an even distribution, while that for the eco-consumers segment is formed by a slightly higher percentage of men than women, in the proportion of 55% to 45%. However, the not committed segment is formed by a significantly higher percentage of men than the other two groups (almost 70% vs. 30%).

In terms of level of environmental knowledge, for the sample of young Spaniards we find that as this level increases, so does the person's environmental commitment. So people with a higher level of knowledge have a greater relative weight in the eco-consumers segment (63%); and the opposite is also true, those people with little knowledge are more likely than the rest to be found in the not committed segment. The same outcome is found for young Mexicans. The not committed segment has the highest percentage of individuals who consider that they are more ignorant; 11.5% compared to 6.6% who consider themselves better informed than most people. In contrast, eco-consumers are the ones who consider themselves best informed: 21% of these people say that they are better informed than most people, compared to 2% who are less informed. On average, the eco-citizens segment is formed mainly by people who consider that they have a similar amount of (35%) or less (10%) information than the rest.

With respect to household income level, no significant differences were found between the different segments in the Mexican sample. In contrast, significant differences were found for the Spanish sample. An inverse relationship was found between this income and the level of commitment to the environment, which is opposite to what one might expect. The not committed segment contains a higher percentage of high-income individuals compared to the rest of the segments (individuals with incomes of more than €3,500 make up 21.1% of this segment). The eco-citizens and eco-consumers segments contain individuals with average and low incomes (individuals with income below €3,500 make up 88.7% of the eco-citizens segment and 93.3% of the eco-consumers segment).

5. Discussion of the results

This study has resulted in the identification, among both young Spaniards and young Mexicans, of three segments of individuals with clearly different levels of environmental consciousness: Not committed, Eco-citizens and Eco-consumers. These segments are differentiated not only by the intensity of their beliefs and

behaviours, but also by the type of behaviour they have or are willing to have (consumer behaviour vs. behaviour as citizens). Other existing studies have identified the same number of segments, with similar characteristics. For example, Jaiswal et al. (2021) call them “keen greens”, “moderate greens” and “reluctant greens”. Palacios-González & Chamorro-Mera (2020) refer to them as “non-responsible potential investor”, “potential investor without sacrifice” and “responsible potential investor”. Although they only analyse intentions, Saleem et al. (2018) also identify three segments of young consumers classified as: Conservatives, Indifferent, and Enthusiasts. In a sample of young people, Coşkun and Yetkin Özbük (2019) identify three clusters, namely, “non-greens”, “reluctant greens” and “true greens”. In Mexico, the study by González et al. (2015) identified five segments instead of three (Non-ecological, Eco-indifferent, Eco-sable, Eco-fashion and Eco-integral) and differentiated between them not only on intensity, but also the specific type of pro-environmental behaviour.

With the results of our research, we can state that almost 78% of young Spanish university students and almost 86% of similar Mexican students have a high level of consciousness and therefore are potential purchasers of environmentally friendly products. These percentages correspond to individuals who can be classified as eco-citizens or eco-consumers. The first are willing to act personally to protect the environment, either as citizens or as consumers, but only if they do not have to make personal sacrifices. The second are willing to accept some sacrifices. This difference in the willingness to make sacrifices can also be seen in the Spanish population in the study by Palacios-González & Chamorro-Mera (2020), but in this case the analysis was focussed on socially responsible investment behaviour.

A second objective of this study was to analyse the profile of the individuals making up each segment. The results obtained raise new doubts about the ability of socio-demographic factors to contribute when studying environmental behaviour. Although there are significant differences between segments in terms of gender, the relationship is different in each country. In one case women have a greater presence in the more committed segment and, in another case, this is true for men. For income level, the study shows an influence in one sample, but the influence is the opposite of what one might expect. There is no significant influence in the other sample. In terms of the level of environmental consciousness, the results are consistent with most studies on young consumers, showing a positive relationship with the level of environmental commitment.

A third objective of this study was to analyse the possible differences between young people in the two countries. The similarities between the different segments identified in the two samples mean that no significant influence has been found for the country or cultural differences, beyond certain differences in terms of the size of each segment. Greater differences between countries were found in the study by Yilmazsoy et al. (2015), on young people in China, Germany, and Turkey. In the case of young Spaniards and Mexicans, these similarities could be due to both belonging to a Latin culture, sharing certain personal values despite the differences between the two countries in terms of the implementation of waste management systems and the presence of environmentally friendly products in normal shops. The study by Su et al. (2019) found differences in values between young people in the USA and China.

The fact that the sample was exclusively young university students could explain why there are not as many differences as found in the study by Dinh et al. (2021) between Japanese and Vietnamese people with samples of different ages. Young people, through the social networks and the education they receive, think in a more globalised way and have more information about the damage being done to the planet.

6. Conclusions

Through marketing mix strategies, companies and other non-profit organisations can influence the consumption behaviour of citizens and thus help to achieve Goal 12 of the UN’s Sustainable Development Goals. An effective communication strategy must be based on knowledge of the attitudes and behaviours of consumers because that information is essential to understand how to design the right messages to grab the attention of consumers and drive changes in their behaviour. As indicated by Palakshappa and Dodds (2021), increasing our understanding of how to address the gap between awareness, attitudes, and behaviour of consumers in relation to sustainable consumption is crucial in utilising marketing effectively to achieve SDG12.

The differences between the three segments identified in both samples imply that the strategies that need to be used to provide an incentive for future environmentally friendly behaviour will also be different.

Knowledge of these segments and their characteristics provides very useful information for both the public bodies and universities designing awareness campaigns and the companies designing campaigns to sell environmentally friendly products.

In the campaigns targeted at the segment of individuals with little awareness, the recommendation is normally to emphasise the problem and its consequences to increase emotional engagement. Marketing managers and government policy makers should actively disseminate information about environmental issues and problems to nudge young people into embracing green behaviours. Managers should adopt the twin strategies of bringing about societal change as well as educating consumers about environmental dangers facing mankind (Fatah and Naved, 2018).

There is also often a focus on perceived consumer effectiveness, in this case with the idea of consumer empowerment, highlighting in awareness campaigns the power we have as individuals to change things through our small daily actions. We agree with Perera et al. (2018) in highlighting the importance of emphasising individual action in achieving sustainable development goals. Marketers need to drive home the point that the role of young consumers can be pivotal in preserving the environment.

If the target audience of the awareness campaign is ideally eco-citizens, the results show that the message needs to be focussed on increasing the social norms, or in other words, on creating messages based on linking pro-environmental behaviour with being socially acceptable, with civic duty and with the social differentiation of the individual. Strengthening green **social norms** and creating societal pressure might lead people to exert pressure on other relevant individuals to consume green products. We concur with Kumar et al. (2019) and Blose et al. (2020) in emphasising the influence of peer groups. This peer influence is defined as the activities carried out by environmentally conscious individuals to generate awareness among their friends and inspire them to adopt green consumption habits. This will help in garnering the power of word of mouth. It should be noted that, according to the results of Rezaei et al. (2022), the social network had a significant effect on motivating university students' environmentally responsible behavior and it improved environmental attitudes.

Finally, for both eco-citizens and eco-consumers, communication campaigns must highlight the potential personal gains for the individual from the environmentally friendly actions they are being asked to adopt. These campaigns can be focussed on the issue of long-term costs savings, benefits for health, convenience, etc.

In terms of the limitations of the study, we should mention that the results of this research are limited because of the type of population analysed, young university students, who have an education level that could influence their level of consciousness. In addition, we agree with Coşkun and Yetkin Özbük (2019) that it would be interesting to assess the effects of specific attitudes, intentions, and behaviour, such as recycling, climate change and energy, water-saving or buying some kind of green product.

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